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JOURNAL
OF THE
ASIATIC SOCIETY

No. VII.—1850.

Conspectus of the Ornithology of India, Burma, and the Malayan Peninsula, inclusive of Sindh, Asám, Ceylon, and the Nicobar islands.—By E. BLYTH, Esq.*

Fam. VULTURIDÆ.†

Gidh, H., Shukuni, Beng.: Gúd, or Gerni
(Tickell).

Subfam. VULTURINÆ.

Genus VULTUR, L. (as restricted).

V. MONACHUS, L. (Edwards, pl. 290; Tem., Pl. Col. 426;
Gould's B. E. pl. 2).

SYN. *V. cinereus* et *V. cristatus*, Gmelin.

V. arrianus, Lapeyr.

V. imperialis, Temminck.

V. vulgaris, Daudin.

V. niger, Brehm.

Egyptus niger, Savigny.

HAB. Mountainous parts of Europe and Asia; Himalaya.

* Continued from p. 342.

† The restricted VULTURIDÆ divide into

1. VULTURINÆ. Comprising the gener *Vultur* and *Otogyps*.
2. GYPINÆ. *Gyps* and *Gyphierax*.
3. SARCORHAMPHINÆ. *Sarcorhamphus*, *Cathartes*, and *Neophron*.

No. XLIII.—NEW SERIES.

3 T

Genus OTOGYPS, G. R. Gray.

73. O. CALVUS (Tem., Pl. Col. 2).

SYN. *Vultur calvus*, Scopoli.

V. ponticerianus, Daudin.

Mollá Gidh ('Priest Vulture'), H: *Lál-mátá Shukuni*
(*Red-headed Vulture*'), Beng.

HAB. India generally: common. Tenasserim provinces.

Subfam. GYPINÆ.

• Genus GYPS, Savigny.

74. G. FULVUS (Pl. Enl. 426).

SYN. *Vultur fulvus*, Gmelin.

V. persicus, Pallas.

V. vulgaris et *V. percnopterus*, Daudin.

V. albicollis, Linderen.

V. trincalos, Bechstein.

V. indicus apud Jerdon, *Catal.*

V. Kolbei (?), Daudin.

Gyps vulgaris, Savigny.

Mahá deo ('huge giant'), of Mahrattas?

HAB. Mountainous regions of the Old World: Himalaya; not well ascertained as an inhabitant of S. India.

Remark. Ornithologists are much divided in opinion as to whether at least two distinct, though closely affined, species exist in *G. fulvus* and *G. Kolbei* of authors. Dr. A. Smith regards them as the same, as does also Mr. G. R. Gray (in his second and improved edition of the Catalogue of *Raptores* in the British Museum (1848). Still more recently, M. Degland also identifies them, remarking that—"Le *Chasse-fiente* de Levaillant, et le *V. Kolbei* que M. Temminck lui rapporte, mais que le Docteur Rüppell regarde comme une espèce parfaitement distincte, me paraissent appartenir l'une et l'autre au *V. fulvus*;"—the various figures referred to by different authors, according to this naturalist, representing one and the same species in different phases of plumage. On the other hand, M. Alfred Malherbe, in his *Faune Ornithologique de la Sicilie*, p. 20, refers to *G. fulvus* and *G. Kolbei* as "espèces parfaitement distinct (ainsi que l'on peut s'en convaincre en examinant les nombreux sujets donnés au muséum

de Franckfort-sur-Mein, par M. le Docteur Rüppell);”* and M. Temminck gives their differences as follows, admitting both into the European fauna. The *Chasse-fiente* (*G. Kolbei*), according to this naturalist, may be distinguished at all ages from the true *Vautour Griffon* (*G. fulvus*) by the shape of the feathers on the wings and under-parts, all of which are rounded at tip, whereas in the *Griffon* the same feathers are long and acuminate; the ruff also is not so long nor so abundant. General colour of the plumage of *G. Kolbei* pale *café-au-lait* or isabelline, often (or according to age) varied or margined with brown more or less deep. The adult is almost wholly of a whitish isabelline; whereas the plumage of the adult *Griffon* is light brown throughout. The crop of the *Chasse-fiente* is of a deep brown, the head and neck covered with close flat down. A fine adult in the Society’s museum from Algeria (received from M. Malherbe) accords with this description of the *Chasse-fiente*; while a young bird from Nepal (in much worn plumage) seems to correspond with the *Griffon*. Dr. Schlegel classes the *Chasse-fiente* as a permanent variety of *G. fulvus*, terming it *Vultur fulvus occidentalis*.

Lastly, Mr. John Cassin, in his notes on the *Vulturidæ* in the collection of the Academy of Natural Sciences of Philadelphia (published in the ‘Proceedings’ of that Academy for 1849, p. 158), remarks finally on the question as to the plurality of species confounded under *G. fulvus*, that—“In the present case the number of specimens” (16!) “is not sufficiently large to warrant a conclusion, but they appear to present uniformly different characters enough to induce the opinion that the following are specifically distinct;—*Gyps fulvus*, (Gm.); *G. Kolbei* (Daud.); *G. indicus*, (Tem.); and *G. tenuirostris*, (Hodgson);” though he afterwards expresses a doubt with regard to the correct identification of the last, and believes the *G. indicus*, (Tem.), to be from Africa! Mr. Jerdon, however, considers that M. Temminck’s plate of his *Vultur indicus* represents the young of *G. bengalensis*, (Gmelin).

75. *G. INDICUS* (Gray and Mitchell, *Ill. Gen. Birds*, pl. 3).

Vultur indicus, Scopoli and Latham.

* Dr. Rüppell himself, however, now considers them to be the same. Vide his *Systematische uebersicht der Vögel Nord-ost Africa’s* &c. (1845), p. 9.

V. tenuiceps et tenuirostris, Hodgson.

HAB. India and Malay countries.

Remark. This is the only Vulture which we have seen from the Malayan peninsula, and it appears to be common in open country throughout India, never (that we have observed) coming into towns or populous neighbourhoods. Like *G. fulvus*, it has 14 tail-feathers, *G. bengalensis* having constantly but 12;* and it is remarkable for the elongation of the ceral portion of the bill, and narrow form of the head, as compared with *G. bengalensis*; the bill and head of *G. fulvus* being intermediate. Its plumage much resembles that of *G. fulvus*; but old birds have merely a few small scattered downy tufts on the black naked neck. The original description of this species by Sonnerat refers to an individual of the second year.

76. *G. BENGALENSIS* (Hardwicke's *Ill. Ind. Zool.*).SYN. *Vultur bengalensis*, Gmelin (the young).*V. indicus*, Tem. (young, apud Jerdon in *epistola*).

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| <i>V. chagoun</i> , Daudin | } adult. |
| <i>V. leuconotus</i> , Gray | |

HAB. India generally: Tenasserim provinces. A summer visitant in Afghanistan. Very abundant in populous neighbourhoods, about the outskirts of towns and villages, and occasionally even alighting in the streets, shewing little fear or distrust of the passers-by.† In the open country it is replaced by the preceding species. According to Rüppell, *G. bengalensis* also inhabits Sennaar.

Subfam. SARCORHAMPHINÆ.

Genus NEOPIRON, Savigny.

77. *N. PERCNOPTERUS* (*Pl. Enl.* 407, 429).SYN. *Vultur percnopterus*, L. (nec Pallas).*V. leucocephalus* et *V. fuscus*, Gmelin.

* From the Parrots and Birds of prey until we come to certain Pigeons, there is no other instance of the number of tail-feathers exceeding twelve.

† On one occasion, when a number of these Vultures had descended in the Society's compound at sight of some flesh, I observed a particularly fine adult, which I directed an attendant to entice by throwing to it morsels of meat nearer and nearer, when it was taken without difficulty by the hand. On seizing it by the wing, the Vulture struggled to escape, but made no attempt at defence. Its companions,

V. ginginianus et *V. albus*, Daudin.

V. meleagris, Pallas.

V. fuscus, Boddaërt.

V. leucocephalus, Brisson.

Pernopterus aegyptiacus, Stephens.

Süngra, or *Sündá*, ('sharp-scented,') Sindh (Burnes).

HAB. Warmer regions of Europe, Asia, and Africa: abundant on the plains of India; rare and accidental below the tideway of the rivers in Lower Bengal. A summer visitant in Afghanistan.

Fam. GYPÆTIDÆ.

Genus GYPÆTOS, Storr.

78. *G. HEMACHALANUS*, Hutton, *J. A. S.* III, 522.

G. barbatus orientalis (?), Schlegel and Pr. Bonap.

Ūrgūl, Masuri (Hutton): *Kajir*, or *Fumai*, Kabul (Burnes). *Golden Eagle* of English residents in the Himalaya.

HAB. Himalaya; Afghanistan.

• *Remark.* There appear to be three closely affined species or races of Lammérgeyers, namely *G. barbatus* of the Alps and higher mountains of S. E. Europe and probably Asia Minor,—*G. meridionalis*, Brehm, of N. Africa and found also on the Pyrenees and in Sardinia,—and the present Asiatic race distinguished by a pectoral band, in general conspicuously developed, and which would appear never to occur in the others. *G. meridionalis* is recognized as a permanent variety of *G. barbatus* by Dr. Schlegel, equivalent to his distinction of *Circus Sykesii* from *Circus cinerascens*; but M. Degland regards it as insufficiently distinguished, it being merely of inferior dimensions and less robust.

however, immediately took the alarm, but without going away, and would not be enticed near enough to allow of a second capture. It is remarkable that during some years these Vultures come much more into the town of Calcutta than in other years; for, in general, they are little seen except about the abattoirs and place of cremation.

Tribe. NOCTURNÆ.*

Fam. STRIGIDÆ.†

Hulu, *Jaghal*, and *Būm* (Pers.), II.; *Hūtūm*, and *Pencha*, B.; *Bassá*, Cingh.

Subfam. BUBONINÆ.

Genus BUBO, Sibbald.‡

79. B. ORIENTALIS (Pl. Col. 174, 229).

SYN. *Strix orientalis*, Horsfield.

S. sumatrana, Raffles.

S. strepitans, Temminck.

B. et Huhua nipalensis, Hodgson.

II. *pectoralis*, Jerdon.§

Huhua and *Huhu chil*, ('Howler'?, or 'Howling Kite'?),

Nepal (Hodgson): *Ūman*, Malabar (Jerdon).

HAB. S. E. Himalaya; S. India; and Malay countries.

80. B. BENGALENSIS (Gould's 'Century,' pl. 3).

SYN. *Otus bengalensis*, Franklin.

Bubo caveareus et *Urrua cavearea*, Hodgson.

Ghughu, H. (Jerdon).||

HAB. India generally; Afghanistan: but not met with below the tideway of the rivers in Lower Bengal.

* Vide p. 317.

† The Owl family primarily divides into three subfamilies, viz. :—

1. BUBONINÆ. Comprising all the species with *aigrettes*, or the 'Horned Owls,' inclusive of *Nyctea* which has distinct though small *aigrettes*.

2. SURNINÆ. *Athene*, *Syrnium*, and their numerous (and chiefly intermediate) affines.

3. STRIGINÆ. *Phodilus*, *Strix* (as now limited), and *Glaux*.

‡ We have been assured of the existence of BUBO MAXIMUS, Sibbald, in the Himalaya, in addition to *B. bengalensis*, *Ketupa flavipes*, &c., but have seen no specimen. Mr. Gould has seen it from China.

§ *Bubo pectoralis*, (Jerdon), from the Himalaya, is given as a distinct species from *B. orientalis* (v. *nipalensis*) from Java, in Mr. John Cassin's Catalogue of the *Strigidæ* in the collection of the Academy of Natural Sciences of Philadelphia (1849).

|| In Bengal, this name is applied to the Doves (*Turtur*). In either case, it derives evidently from the voice. So, also, *Hulu*, H., *Ulula*, latin (whence *Ululo*), and *Owl* (and *howl*), English, &c. Again, *Ūllū*, H., *Ūllūk*, Beng., for the *Hylobates hoolock*.

81. B. COROMANDER (Hardw. *Ill. Ind. Zool.*,—very bad).

SYN. *Strix coromandra*, Latham.

Urrua umbrata, Blyth.

HAB. India generally.

Genus ASIO, Brisson.

82. A. OTUS (*Pl. Enl.* 29 ; Gould's *B. E.* pl. 39).

SYN. *Strix otus*, L.

S. soloniensis, Gmelin.

S. deminuta, Pallas.

Otus albicollis, Daudin.

O. europæus, Stephens.

O. communis, Lesson.

O. vulgaris, Fleming.

O. sylvestris, *arboreus*, et *gracilis*, Brehm.

O. Wilsonianus, Lesson.

O. americanus, Bonap. } American.

HAB. Europe and N. Asia ; Himalaya ; N. Africa ; N. America ?

Remark. The N. American race, regarded as distinct by some authors, is considered by Mr. G. R. Gray to be identical with that of the Old World. Vide Brit. Mus. Catalogue of *Raptores* (1848).

83. O. BRACHYOTUS (*Pl. Enl.* 438 ; Gould's *B. E.* pl. 40).

SYN. *Strix brachyotus*, L.

S. ulula, *ægolius*, et *accipitrina*, Pallas.

S. arctica, Sparman.

S. tripennis, Schrank.

S. palustris, Smies.

S. caspia, Shaw.

S. brachyura, Nilsson.

Otus palustris et *agrarius*, Brehm.

Chotá Ghughu ('small Owl'), II. (Jerdon).

HAB. Europe, Asia, Africa, and N. and S. America. India generally, visiting the plains in winter.

Genus SCOPS, Savigny.

84. SC. ALDROVANDI, Ray (Gould's *B. E.* pl. 41 ; Jerdon's *Ill. Ind. Orn.* pl. 41, chesnut variety).

SYN. *Strix scops*, L.

S. zorca et *giu*, Scopoli.

S. pulchella, Pallas.

S. carniolica, Gmelin.

S. ephialtes, Savigny.

S. lakhamæna (?), Pennant.

Scops europæus, Lesson.

Sc. senegalensis, Swainson.

Sc. capensis, Smith.

Sc. sunia (chesnut variety), and *Sc. pennata* (grey variety),
Hodgson.

Sc. malayanus, A. Hay.

Sc. rutilus, Pucheran, *Rev. Zool. &c.*, 1849, p. 299.

Ephialtes spilocephalus (?), Blyth, the young?

Otus (Scops) japonicus, et *O. (Sc.) africanus*, Tem. (apud
G. R. Gray).

Chitta gul ('small Owl'?), Telinga (Jerdon): *Chugad kusial*, or
Sunya kusial, Nepal (Hodgson).

Пав. Europe, Asia, and Africa: in Europe migratory.

Remark. In India, Burma, &c., this species assumes a phase of plumage very commonly, which does not appear to have been ever observed in Europe, and in Africa but rarely;* though frequent also in *Sc. asio* of N. America, and a similar variation (though to a less extent) occurs likewise in *Syrnium aluco*, as well as in some of the *Podargi*. It is characteristic neither of age nor sex. The phase referred to is a bright chesnut-rufous colouring, more or less deep, with the markings sometimes nearly obsolete, except the black tips of the ruff and under-scapularies, and some streaks on the breast and flanks, the belly and lower tail-coverts continuing white with the usual markings. The aigrettes (so far as we have seen) are always rufous in Indian specimens; and there is generally a strong tinge of this hue upon the wings. We continue to doubt whether *Scops spilocephalus*, nobis (*J. A. S.* xv. 8), should not rather be considered a distinct species, even after examination of a second specimen; and an *Ephialtes gymno-*

* *Sc. rutilus*, Pucheran, is from Madagascar; and M. Alfred Malherbe mentions a specimen from Algeria "d'un roux vif rayé de noir et de cendré." *Catal. Rats. d'Ois. de l'Algerie*, p. 8. An Algerian specimen sent by that gentleman to the Society's museum has a considerable admixture of rufous in its colouring.

podus, G. R. Gray, MS., from "India," is retained as distinct in Mr. Gray's second catalogue of the *Raptores* in the British Museum.

85. SC. SUPERCILIARIS? (*Pl. Col.* 21 ?).*

SYN. *Strix superciliaris* (?), Vieillot (vide *Rev. Zool. &c.*, 1849, p. 19).

S. rufescens, Horsfield.

S. Sonneratii (?), Temminck.

Ephialtes sagittata, Cassin.

HAB. Malayan peninsula and archipelago. (Not India.)

86. SC. LEMPIJI (*Pl. Col.* 99).

SYN. *Strix lempiji*, Horsfield.

S. noctula, Reinwardt.

Scops javanicus, Lesson.

Sc. lettia, Hodgson.

Sc. lettoides et griseus, Jerdon.

Lempiji, Java (Horsfield); *Tharkavi Chugad*, or *Lattya Kudyal*, Nepal (Hodgson).

HAB. In different varieties, India, China (?), and the Malay countries.

. *Remark.* Specimens of this bird from the sub-Himalayas, Asám, Sylhet, Arakan, and the Tenasserim provinces, are generally (but not always) larger than those from S. India and Ceylon, while examples from the Malay countries are, for the most part, deeply tinged with rufous-brown.

Genus KETUPA, Lesson.

87. K. FLAVIPES.

SYN. *Cultrunguis flavipes*, Hodgson.

HAB. Himalaya only (so far as hitherto observed).

88. K. CEYLONENSIS (Hardwicke's *Ill. Ind. Zool.*)

SYN. *Strix ceylonensis*, Latham.

S. Leschenaultii, Temminck.

S. Hardwickii, Gray.

S. dumeticola, Tickell.

Cultrunguis nigripes, Hodgson.

* Unfortunately, we have never seen the *Planches Coloriées* of M. Temminck; the only copy in Calcutta being, to us, inaccessible.

Ūlu (generic), H. ; also *Amra ka Ghugu*, H. (Jerdon) :

Hutūm (generic), Beng. ; *Tee-dook*, Arakan (Phayre).

HAB. India generally ; Ceylon ; Asām ; Arakan ; Tenasserim provinces ; very common in Lower Bengal.

89. K. JAVANENSIS, Lesson (Tem., *Pl. Col.* 74).

SYN. *Strix ketupu*, Horsfield.

S. ceylonensis apud Temminck.

Tumba, or *Ketombo Ratanapye* ; *Hanta*, Pelow, Malayan : *Blo ketupu*, Java.

HAB. Malayan peninsula and archipelago : rare in Arakan.*

Subfam. SURNINÆ.

Genus ATHENE, Boie.

90. ATH. CUCULOIDES (Gould's 'Century,' pl. 4).

SYN. *Noctua cuculoides*, Vigors.

N. auribarbis, Hodgson.

Dzee-gwet, Arakan (Phayre).

HAB. Himalaya ; Asām ; Arakan ; Tenasserim provinces ; China (Chusan).

91. ATH. RADIATA.

SYN. *Strix radiata*, Tickell.

Athene erythropterus, Gould.

Noctua perlineata, Hodgson.

N. cuculoides apud Jerdon, *Catal.*

Ath. undulatus apud Blyth, *J. A. S.* XI, 457.

Jungli Choghud, H. (Jerdon) : *Chotá Kál-panchá* ('small Death-Owl'), Beng. ; *Chugad*, Nepal (Hodgson).

HAB. Most parts of India ; Sub-Himalayan regions : never on the alluvium of the Gangetic delta, but appears immediately this is quitted in a westerly direction.

92. ATH. MALABARICA, Blyth, *J. A. S.* XV, 280.

SYN. *Ath. castanoptera* apud Jerdon, *Supp.*

HAB. Malabar.

* Mr. Cassin gives "India" as the locality for a specimen of this bird : but we have never heard of its occurrence on the western side of the Bay of Bengal, and know but of one instance of its being obtained so high as in Arakan.

93. **ATH. CASTANOTUS**, Blyth, Museum Catalogue.
 SYN. *Ath. castanoptera* apud Blyth, *J. A. S.* XV, 280.
Pancha Bassú ('small Owl'), Cingh.
 HAB. Ceylon (where common).*
94. **ATH. BRODIEI**.
 SYN. *Noctua Brodiei*, Burton.
N. tubiger et *Athene badia*, Hodgson.
 HAB. Himalaya.
95. **ATH. BRAMA** (*Pl. Col.* 68).
 SYN. *Strix brama*, Temminck.
Noctua indica, Franklin.
N. tarayensis, Hodgson.
Káturiá Pencha, ('wood-Owl,' i. e. that hides in cavities of wood), Beng.; *Khukhusat*, Upper Hindustan;
Chugad, or *Choghud*, H.; *Pungla*, Mahratta.
 HAB. India generally to foot of Himalaya; Asám; Sylhet; extremely common in Lower Bengal: Persia (as about Erzeroum).†
- Genus **NINOX**, Hodgson.
96. **N. SCUTELLATUS** (*Pl. Col.* 289).
 SYN. *Strix scutellata*, Raffles.
S. hirsuta, Temminck.
S. lugubris, Tickell.
Ninox nipalensis, Hodgson.
Athene malayensis, Eyton.
Kál Pencha ('Death-Owl'), Bengal: *Choghud Besra* ('Hawk Owl'), II. (Jerdon): *Kheng-loop*, Arakan (Phayre): *Raja Wali*, Malayan.

HAB. India generally; Ceylon; Burmese and Malay countries:

* The Malayan *Ath. castanoptera*, (Horsfield, v. *spadicea*, Reinwardt), is mentioned as an inhabitant of the Tenasserim provinces by Dr. Helfer, and he is probably correct; but as Nos. 91, 92, and 93, are nearly affined to *Ath. castanoptera*, we must consider the Tenasserim species as needing satisfactory determination.

† **ATH. PSILODACTYLA**, (L., apud Boie), v. *Strix noctua*, Retzius, *S. nudipes*, Nilsson, *S. passerina* apud Latham and Temminck, *Ath. bactrianus*, Blyth, *J. A. S.* XVI, 776, &c., inhabits middle Asia, as Afghanistan and Tibet, but does not appear to have been observed in the Himalaya. *Strix persica*, Vieillot, is probably a variety. Vide *Rev. Zool. &c.* 1849, p. 18.

not rare in Lower Bengal. Madagascar (Dr. A. Smith, *Afr. Zool.*, p. 163).

Genus SYRNIUM, Savigny.

97. S. INDRANI (Gray's *Ill. Gen. Birds*, pl. 14).

SYN. *Strix indranee*, Sykes.

Ulula? et *Bulaca newarensis*, Hodgson.

Bulaca monticola, Jerdon.

Newar, Nepal (Hodgson); *Loco Bassa* ('large Owl'),

Cingh. (Layard).

HAB. Mountainous parts of India generally; Ceylon; Tenasserim provinces; Malayan peninsula.

Remark. We are strongly inclined to suspect that there exist two races of this bird, one of larger size peculiar to the Himalaya, the other alike in Central and S. India, Ceylon, and the Malayan peninsula.

98. S. SELOPUTO (Tem., *Pl. Col.* 230).

SYN. *Strix seloputo*, Horsfield.

S. pagodarum, Temminck.

HAB. Tenasserim provinces; Nicobar islands; Malayan peninsula and archipelago.

99. S. SINENSE? (Hardw., *Ill. Ind. Zool.*)

SYN. *Strix sinensis* (?), Latham.

S. orientalis, Shaw.

Syrnium ocellatum, Lesson.

HAB. Most parts of India, to foot of Himalaya: not Lower Bengal (at least below the tideway of the rivers). China?

100. S. ALUCO? (Himalayan variety).

SYN. *Strix aluco* (?) et *S. stridula* (?), Gmelin, &c. &c.

Syrnium niviculum, Hodgson.

HAB. Himalaya: Europe; N. Africa; Asia Minor (Strickland); Japan (Temminck).

Remark. On comparison of numerous specimens both from Europe and different parts of the Himalaya, and varying much in plumage from both regions, we can no longer regard them as referable to more than one variable species, although Himalayan examples may generally be distinguished by their darker hue, and the usually greater development of the transverse markings of the plumage.

Subfam. STRIGINÆ.

Genus PHODILUS, Is. Geoffroy.

101. PH. BADIUS (Horsfield's
- Zool. Res. in Java*
- , pl.).

SYN. *Strix badia*, Horsfield.*Wowo-wiwi*, or *Kalong-wiwi*, Java.

HAB. Nepal; Sikim; Asám; Arakan; Tenasserim provinces; Malayan peninsula and archipelago.

Genus STRIX, L. (as restricted).

102. STR. JAVANICA, de Wormb (Gray's
- Ill. Gen. Birds*
- , pl. 15).

SYN. *Str. flammea* of India and the Malay countries, auctorum.

HAB. S. E. Asia and its archipelago. Very common throughout India.

Remark. This species is distinguished from *Str. flammea*, L., by its larger size and especially by its more robust feet and toes.

Genus GLAUX, Blyth.

103. GL. CANDIDA (Jerdon's
- Ill. Ind. Orn.*
- pl. 30).

SYN. *Strix longimembris*, Jerdon.

HAB. Plains of India; common: very rare on the mud-soil of Lower Bengal.

NOTE. Since the conspectus of Indian FALCONIDÆ was published, the author has received several standard works from Europe, among which are the valuable publications of Dr. Rüppell, the 'Manuel d'Ornithologie' of M. Temminck (ed. 1840), and the more recent Manual of European Ornithology of M. Degland. The following remarks occur on reference to these and other works.

FALCO LANARIUS, Schlegel, apud Degland, is by both of these authors identified with *F. Fiedleggii*, Schlegel, the African species which Mr. Strickland considers to be the same as *F. biarmicus* v. *peregrinoides*, &c. &c. (vide p. 319); and is not therefore the Indian *F. JUGGUR* (our No. 17), the adult and young of which have been figured by this name in Gould's 'Birds of Asia.' Dr. Rüppell, in his list of the *Falconidæ* of N. E. Africa (1845),* retains as separate species *F. peregrinoides*, Tem., and *F. biarmicus*, Tem., referring the latter to the subdivision *Tinnunculus*, while he assigns *F. chiequera* to *Falco*;†

* 'Systematische Uebersicht der Vögel Nord-ost Afrikas,' &c., p. 11.

† Dr. Rüppell unites *Hypotriorchis* and *Tinnunculus*, as indicated by his plac-

and it is remarkable that he does not include *Hypotriorchis subbuteo* in the list, though a migratory bird in Europe, and mentioned by Dr. A. Smith to occur at the Cape of Good Hope.

No. 19. There is a *FALCO PUNICUS*, Levaillant, "Exploration Scientifique de l'Algérie, Oiseaux, pl. 1, 1847" (as cited by Mons. A. Malherbe), which may perhaps be *F. peregrinator*. Dr. Hartlaub is disposed to think it a local variety of *F. peregrinus*.*

No. 42. As it seems doubtful whether No. 41 is not the true *ACCIPITER VIRGATUS*, (Tem.), of the Malay countries, a note of doubt should be placed after this habitat as assigned to No. 42.

No. 61. As far as can be judged from Dr. Rüppell's figure of *BUTEO RUFINUS*, this certainly would not seem to represent the common Indian Buzzard; but we may suppose that Mr. G. R. Gray has good authority for the identification, although it does not appear from his last catalogue of the British Museum *Raptores*, that there is an African specimen of this bird in the national collection.

No. 71. We can find nothing in the descriptions of *MILVUS ATER* by M. Degland and others, which does not apply to the Indian *M. govinda*, and bear out Mr. Strickland's opinion of their identity. In *Proc. Zool. Soc.* for 1834 or 1835 (we are necessitated to quote from memory), a recent specimen of *M. ater* shot at Erzeroum or Trebizond is described to have had orange-brown (?) irides, whereas those of the Indian Kite are dark brown.

P. 317. The prior name *BAZA*, Hodgson, should be substituted for *Aviceda*, Swainson, among the *Perninae*.

Summary View of the Indian RAPTORES, considered in relation to those of other regions. On glancing over the list of Indian raptorial birds, the faunist, familiar with European ornithology, cannot fail to be struck with the number of European species of *DIURNÆ* which likewise inhabit India:—all, in fact, with the exceptions of a few stragglers from Africa or America, the Jer Falcons of the north (and even one of these we have admitted, on what appears to be satisfactory

ing *F. concolor*, Tem., in the latter.—Since writing the above, we have been fortunate in obtaining a live specimen of *F. chicquera*, observation of which inclines us now to regard it as an aberrant *Tinnunculus*,—certainly not a *Hypotriorchis*.

* "Bericht über die Leistungen in der Naturgeschichte der Vögel während des Jahres 1847," p. 14.

native testimony, as an exceedingly rare visitor in the N. W.), and finally *Haliaeetus albicilla*, *Milvus regalis*, *Archibuteo lagopus*, and *Tinnunculus æsalon*. The two last mentioned are known only as winter visitants in S. Britain, but all are more or less seen in N. Africa, and it is remarkable that *Archibuteo lagopus* is likewise met with at the Cape of Good Hope. We believe, too, that all of these are found throughout northern Asia. Certain European species, however, as *Pernis apivora*, are severally replaced in India by closely affined races (perhaps not in all instances distinguishable); and the same is perhaps the case with *Milvus niger*, and would have been averred of *Buteo vulgaris*, only that the latter would itself appear to inhabit a loftier elevation than the common Indian Buzzard on the Himalayas and likewise the Nilgiris. With the NOCTURNÆ, on the contrary, the species appear to be throughout distinct in the two regions, save only *Asio otus* and *A. brachyotus*, and *Scops Aldrovandi* and *Syrnium aluco*; though both of the latter are, in general at least, so far distinct in their plumage, that the Indian race of each may be regarded as a marked variety, or as one of the many instances in which it is not likely that zoologists will ever be agreed about considering as a distinct species or not. Again, of these four, *Asio otus* and the *Syrnium* are confined to the Himalaya, the *Scops* is widely diffused, and *A. brachyotus* is an erratic winter visitor in the plains, by no means rare in Lower Bengal. Of the non-European Indian species of DIURNÆ, a few belong to the high table-lands of central Asia, and are little known on the Indian side of the Himalayan snows: such are *Archibuteo hemiptilopus* and *Buteo aquilinus* and *B. plumipes*. *Falco sacer* appears to be a rare mid-Asian bird, scarcely perhaps more frequent in the Himalaya than in E. Europe. Other species inhabiting Europe and northern Asia which in India would appear to be peculiar to the Himalaya, are *Aquila chrysaetos*, *Astur palumbarius*, and *Circus cyaneus*; also *Vultur monachus* and *Gyps fulvus*: and among the NOCTURNÆ (as before remarked) *Asio brachyotus* and *Syrnium aluco*, var.* It is remarkable that there is not a single raptorial species common to India and Australia; unless, indeed, the Indian Kite may yet prove to be identical with *Milvus affinis*, Gould, *Falco peregrinator* with *F. melanogenys*, Kaup,

* Perhaps also *Bubo maximus* and *Athene psilodactyla*. *Gypaetos barbatus*, var., should perhaps be in like manner substituted for *G. himachalanus*.

and *Baza Reinwardtii* with *B. subcristata*, Gould: but many are common to India and the great Indonesian archipelago, and some to both of these regions and to Africa. Our list contains a few which are exclusively Malayan or Indonesian, *e. g.* *Baza Reinwardtii*, *Accipiter nisoides*, *Spizaetus alboniger*, *Pontoaetus humilis*, and *Scops superciliaris* (? *v. rufescens*): other Malayan species reach only (so far as known) to the Tenasserim provinces, as *Hierax fringillarius*, *Buteo pygmaeus* (?), and *Syrnium seloputo*; or still further to Arakan, as *Ketupa javanensis*; or again further to the S. E. Himalaya, as *Phodilus badius*; or the Himalaya generally (visiting the plains of Bengal and Upper India in winter), as *Hypotriorchis severus*. Of species more or less common to all India (in suitable localities) and Indonesia, being moreover peculiar to these regions, may be enumerated *Falco peregrinator* (?), *Pernis cristata*, *Astur trivirgatus*, *Accipiter virgatus* (? *besra*), *Micronisus badius*,* *Spizaetus cirratus*, var., *Ictinaetus malaiensis*, *Poliornis teesa*,† *Pontoaetus ictinaetus*, *Haliaetus Macei* (?), *Haliastur indus*, and *Milvus govinda* (?); also *Otogyps calvus* (?) and *Gyps indicus*: and among the NOCTURNÆ, *Bubo orientalis*, *Scops lempiji*, *Syrnium indrani*, and *Strix javanica*. Others, again, are common to those two regions and to Africa, as *Elanus melanopterus*, *Hæmatornis cheela* (*bacha*?), *Blagus leucogaster*, *Gyps bengalensis*, and *Ninox scutellatus* (Madagascar); or to India and Africa exclusive of Indonesia (?), as *Tinnunculus chicquera*, *Aquila nævioides*, and *Buteo rufinus* (?); to which may be added (though European rarities), *Circæus gallicus*, *Circus Swainsonii*, and *Hieraetus pennatus*.

The species of raptorial birds peculiar to India are remarkably numerous, especially among the NOCTURNÆ; those, at least, which at present are only known to inhabit India. Some are very local, as *Athene castanotus* in Ceylon, *Ath. malabaricus* on the Malabar coast, *Ath. Brodiei* and *Ketupa flavipes* in the Himalaya; and of the three remaining species of *Athene*, *Ath. radiata* is also peculiar but more generally diffused, *Ath. brama* extends into Persia, and *Ath. cuculoides* is the only one we have seen from the eastern side of the Bay of Bengal, though in India it is confined to the Himalaya, and it spreads eastward

* Found also in Afghanistan.

* Or this should rather be considered a true Indian species, which extends its range into the Malayan peninsula and probably not much beyond.

so far as Chusan, and southward to the Tenasserim provinces.* Other fine Owls peculiar to India (or nearly so), are *Bubo bengalensis* and *B. coromander*, *Ketupa ceylonensis*, and *Syrnium sinense*, pretty generally diffused, and the *Ketupa* only appearing (so far as we have seen) on the eastern side of the Bay of Bengal; *Glaux candida* is found chiefly in Central India and parts of Upper Bengal. Not one of these species appears to be known in the Malay countries, and we are aware of only *Bubo bengalensis* having been met with in Afghanistan. Of *Syrnium indrani* we have seen three examples from Malacca, whence may be inferred that this Indian species is there not rare, and probably also inhabits some of the islands. Of DIURNÆ, the Himalayan Lammergeyer, if not distinct, is certainly a well marked variety, found also in Afghanistan. Among the *Falconidæ*, so far as we at present know, the following species are peculiar to India. *Falco jaggur*, *Baza lophotes*, *Spizaetus Kieneri*, *Aquila hastata*; the long-crested race of *Spizaetus cirratus*; *Accipiter virgatus* (? *besra*); *Circus melanoleucos*, which inhabits all India and Ceylon, with Arakan and the Tenasserim provinces; *Hierax cutolmos*, from Nepal and Asām to Tenasserim; *H. melanoleucos*, Asām; *Spizaetus nipalensis*, Himalaya and mountains of Ceylon, and perhaps identical with a Japanese species, as suggested by Mr. G. R. Gray. The genus *Hierax* occurs only in the N. E. extremity of India; and the various large fishing Eagles, excepting the Osprey, and perhaps *Blagrus leucogaster*, appear to be little known in S. India.

Several of the non-European *Falconidæ* of India are distinguished by an occipital crest, either rudimental or developed to a considerable length, and which is commonly held erect or nearly so; it is also generally accompanied by a peculiar style of marking of the plumage, exemplified especially by the three gular lines from which *Astur trivirgatus* takes its name.† These crested *Falconidæ* are *Pernis cristata*, *Baza lophotes* and *B. Reinwardtii*, *Astur trivirgatus*, the different *Spizaeti*, and *Hieraetus pennatus* rudimentally; some of which birds, as the first three and the rest respectively, exhibit little mutual affinity in other particulars.

(To be continued.)

* The Tenasserim *Ath. castanoptera* apud Helfer is in need of further determination.

† *Accipiter virgatus* (? *besra*) and *nisoides* exhibit the same gular lines unaccompanied by an occipital crest.

*Additional Notice of the Shou or Tibetan Stag.—By B. H.*HODGSON, *Esq.*

Since my recent account of the Tibetan Stag was submitted to the Society I have been enabled, through Dr. Campbell's kindness, to examine another specimen consisting of a nearly complete head and horns with the skin on, and inclusive of the skull, which however wants the lower jaw. These are the spoils of a male, and a mature or rather aged male, as is evidenced by the inferior size of the horns, by the partially obliterated sutures of the skull, and by the well-worn canine teeth; and, as this magnificent animal is a tenant of one of the strangest and most interesting regions of the earth, I need make no apology for devoting a few more lines to the description of this second, and in some respects superior, sample of it. The skin is not entirely separated from the skull, nor am I permitted wholly to remove it; but the specimen, as it stands before me, affords satisfactory means of testing the characters, and obtaining most of the dimensions, of both head and skull, and I shall accordingly give a summary notice of both, in completion of my prior paper on the Shou.

The head with its integuments is about 18 inches long, of straight measurement from the snout to the occipital jut, and about 7 inches wide between the salient angles of the brows which project more to the sides than do the cheek bones and consequently exhibit the maximum of breadth. The bridge of the nose inclines to a curve or "Roman" shape. The forehead is broad and flat, seeming to have even a slight dip or depression before the bases of the horns. The muffle, or nude extremity of the nose, is small but distinct, smaller than in any congener I ever saw, but yet unmistakeably developed. It occupies the space between the nostrils, and descends narrowing on the front of the upper lip, till at the margin or aperture of the mouth, the nude moist part of the lip is reduced to less than three quarters of an inch in breadth. The larmiers or suborbital fissures are of medial size, and nude inside as well as round their edges. They are much smaller than in the Rusas, but fully as large as in the Red Deer. The ears are remarkably long ($9\frac{1}{2}$ inches), narrow and pointed, and their copious lining of soft hair, not less than the limited muffle, indicates the extreme coldness of the animal's abode.



The Shou of Tibet. Cervus Affinis

The pelage, like that of every other strictly Himálayan and Tibetan ruminant, has, as is evident from the covering of this head, a harsh, brittle, quill-like character, and probably, on the body of the animal, also a wavy structure; for, on the head this last feature of such pelages is always wanting. The hair of the head is straight and copious, devoid, as usual, of the fine woolly subfleece proper to the body, and on the crown of the forehead it has a length of $3\frac{1}{2}$ inches. The colour of the hair, like its quality, is that so common to the ruminants of Tibet, namely, a purpurescent or embrowned slaty blue passing into paler or grey slaty on the less coloured parts, and terminated externally or tipped with fawn or luteous buff passing into canescent fawn. The orbits and lining of the ears are nearly or quite white, and the lips show a ruddy ochereous tinge void of any dark marks.

The skull, which is $17\frac{1}{2}$ inches long to the jut of the occiput and $6\frac{1}{2}$ inches wide between the outer angles of the orbits (in rectilinear measurements), has the frontals broad, flat and a little hollow before the bases of the horns; the orbits salient and extending laterally beyond the zygomatic arches; the nasals compressed and somewhat arched lengthwise; the cavities for holding the larmiers large and perforate, but less so than in the Rusas; the horn-pedestals low and thick; and, lastly, the occipital plane wide in proportion to its height, and oblate hemispherical in shape. The horns, of a size greatly inferior to those priorly given, originate remotely from each other below the summit of the frontals, spread very amply in their ascent, and recline a good deal before they begin to ascend. The colour of the horns is brown, and their surface is smooth. There are two basal, one central, and one terminal snags to each beam. The former or basal snags of each beam are proximate and parallel to each other, have an anteal external insertion, and a horizontal direction, with the tips of all four bent uniformly upwards. The two inner ones lean directly over the eyes and side of the face, and the two upper and outer ones run, almost parallel, outside of the former which they somewhat exceed in size.

The central snag is the smallest of all, placed equidistantly from the lower and upper snags, inserted on the outside of the beam, and directed forwards and outwards with the lip reverted, as in the basal snags. The apical snag also starts from the outside of the beam, but has an upward direction and little divergency from the beam, which

is decidedly longer, though not thicker, than this terminal snag. The result is a simple fork instead of a crown of snags; and, this being my third fine specimen so characterised, I have now no doubt that the simply forked summit is normal as before conjectured; and also, that the species is identical with my affinis, the trivial differences therefrom, noticed in the prior sample of the Shou, being no longer forthcoming in this.

The subjoined sketches and measurements complete what I have to report respecting the present sample of this splendid Stag.

Dimensions of horns.

| | Feet. Inch. |
|--|-------------|
| Greatest length, along curve, | 3 10½ |
| Girth just above burr, | 0 7¾ |
| Chord of arc or bend of beam, | 1 0½ |
| Basal interval between burrs, | 0 4½ |
| Terminal interval between apical snags, | 3 9 |
| Terminal interval between tips of beams, | 2 6½ |

Dimensions of skull.

| | |
|--|-------|
| Length, from symp. interm. to jut of occiput, straight, .. | 1 5½ |
| Length from symp. interm. to fore angle of orbit, | 0 10½ |
| Thence to jut of occiput, | 0 8 |
| Greatest width between postea angles of orbits, | 0 6½ |
| Length of series of upper molars, | 0 4¾ |
| Interval of foremost molar and the canine, | 0 3 |
| Canine to front of jaw or symp. interm., | 0 2⅞ |
| Diameter of orbit, | 0 2⅞ |
| Extreme length of nasals, | 0 6½ |
| Ditto. of frontals and parietals, | 0 8½ |
| Breadth of occipital plane, | 0 5¾ |
| Depth of ditto, | 0 4 |
| Teeth of upper jaw, | 16 0 |

P. S. The present specimen was killed in the district of Chúmbi which is more wooded and less arid than most other districts of Tibet. To the north Chúmbi adjoins Phári and other parts of Ding-cham vel Damsén whence came the priorly described specimen of the Shou. Chúmbi is the basin of the Máchú vel Torsha river which rises from the western flank of Chúmalári.

*Translation of the "Vichitra Natak" or "Beautiful Epitome,"—a fragment of the Sikh Granth entitled "the Book of the Tenth Pontiff."** By Captain G. SIDDONS, 1st Cavalry.

CHAPTER I.

THERE IS ONE GOD.

Oh good and holy One! by Thy favour I commence this beautiful Epitome of the verbal declarations of the ten pádsháhs.†

To Thy power I am obedient with my whole heart, and shall complete this work if thou deignest thine assistance.

THE PRAISE OF TIME.‡

Thou dwellest in Heaven and upon earth,
Thou destroyest armies of wickedness,
In war thou art ever victorious,

Ever Superior.

Thy power is not only great, but perfect,
Thy refulgence is incomparable,
Thy brilliancy is illimitable,

Equal to the Sun's.

Thou comfortest all who are virtuous,
Thou correctest every evil precept,
Thou puttest to flight all iniquity :

My hope is in thee.

Noble Creator of the world, all hail !

Who mercifully protectest the good,

Who bestowest thy favours upon me,

To thy second, all hail !

Even one brightness

Ungenerated,

God above all gods,

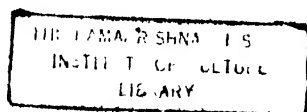
King above all kings

Incorporeal,

* N. B.—Govind Sing, the last of the Padshahs wrote this Book.

† The ten Pádsháhs or Gúrús are 1, Nának, 2, Angad, 3, Amaradás, 4, Rámadás, 5, Arjún, 6, Hargovind, 7, Harkishan, 8, Teghbahádúr, 9, Haráh, 10, Govind Sing.

‡ God the Supreme Being, is personified by काल or time.



He pardons those who worship him, but condemns the wicked.

His shining scimitar instils terror,
 His anklets resounding are heard afar,
 His locks are lovely, and he hath four arms ;
 Even death crouches beneath his weapons ;
 He hath a flaming tongue, and dreadful teeth ;
 His shankh,* so noisy, fills the world with dread ;
 Dark is his visage, yet with all, at full,
 Of beauty, as his attributes are chaste.

The canopy above Time is white and lustrous, and the sun is humbled in comparison with his splendour. He hath large red eyes, whose pupils are like the luminary of day, they gaze upon myriads.

His countenance is so beautiful, that the proud daughters of the gods cannot compare with it. Sometimes he seemeth a warrior, who taketh his bow in his hand, or as a King, who soundeth his loud kettle-drum. When armed, the bravest heroes fly from before him. He handleth his sword like a powerful warrior. He is mighty in battle, and to be feared, nevertheless he is an ocean of mercy,—always kind, always consistent. Kings tremble when they hear thee, the world is thy garment, those who believe in thee will be forgiven. Thou resemblest a black cloud, whose loveliness is perfect, nevertheless thou hast four arms, and when thou holdest the club, the mace, the shankh and the discus, thou art terrible.

Countenance unequalld
 Excelling the God of Love,
 Loveliness unrivalled,
 Coveted by all mankind,
 Forehead like the full moon
 Which humbles even Shéo,†
 With his snake-like necklace.
 Time reproveth the sinful.
 Arm'd with a scimitar
 He scourgeth evil doers.
 He hath a massive club.
 And bendeth the pliant bow.

* Conch used by Hindu gods as a war-horn.—ED.

† Shéo (Siva) is represented in Hindu mythology as wearing a snake round his neck.

He soundeth his loud shank,
And his bell'd girdle ringeth.
Oh Lord ! I bow to thee,
Accept my humility.

Thou hast various forms,
And the great gods are alarmed,
Thou art above all Gods,
The Prince of benevolence.
Thou art the First, and Last,
With attributes infinite ;
Sin sees thy flaming sword
And trembling tries to escape.

Time holds the sword and bow,
All foes he putteth to flight,
His person is so bright
That I am fascinated,
His anklets sound loudly
And create a strange noise,
He is bright as lightning,
My love for him is sincere.

The sound from thy anklets is pure, very pure,
Thy face flashes like lightning, like lightning,
Thy voice is of the loudest, the loudest,
Like the cub in the forest—the forest.

Thou art the past, present, future,
And only solace in this iron age.
Thou art present everywhere
With thy bland and delighted countenance.

In thy head are two savage teeth
Which frighten away all thy enemies,
When angry thou seizest a sword,—
Devout and brave men shout forth, Victory !

Thy armlets and thy anklets sound,
And mountains tremble at thy heavy tread,

Thy girdle and thy gong are loud,
Spirits and mortals all marvel at thee.

Thy wheel revolves throughout all space
And none can check, or hasten on, its course.
Thy mandates who can disobey
Amongst the dwellers of the earth, the sea ?

Time's wheel perambulates the whole universe ; who is there that can disobey Him ? To what Fort, however strong, can we flee to escape Him ? Oh Time ! thou dancest perpetually round all.

If Time chooseth to consume you, plan what you please, you cannot avert the stroke. You may wear a thousand armlets, and mutter as many charms, they will be of no use without Time's assistance.

Time destroyeth men who incessantly deal in charms ; men have spent their lives in searching for charms, and at last have found nothing ! have effected nothing !

There are many who hold their noses* when they pray, and adopt other absurd religious customs which are all perfectly useless : no good can result from them.

Madhkítāb was a powerful demon, but he became subservient to Time. There were also Súmb, Nisamb and Anaut-bīj, whom Time hath destroyed.

There were the Rájás Prith and Mándhátá, the Lords of the earth, whose chariot wheels traversed the world, also the Rájás Bhoj, Bhim and Bharat who conquered the remainder ; but Time hath subdued them all.

Where are the mighty who proclaimed their orders to the world ? The powerful who wrested the dominion of the earth from the Ch'hettris ? Whose sacrificial rites were pompous and imposing, and whose fame was notorious ? They have all yielded to Time.

How many strong Forts have been taken, how many strongholds destroyed ? Brave men's praises have been sung, and the history of great battles recorded. How insignificant are all compared with one blow from the hand of Time !

In past ages there were mighty Monarchs, who revelled in every

* A common custom amongst the Hindus, as an attitude of prayer.

conceivable enjoyment, until humbled by the decree of Time, they walked bare-footed.

There was one* who had subdued the universe, and forced the Sun and Moon to stand as sentinel at his gate! There are who have conquered Indra and loosed him again, but their power is nothing compared with the Power of Time.

There have been many Ráms; they are dead,
And many Krishṇs who have passed away;
There have been mighty gods, who have perished;
Noble intellects too, which have faded;
Deities, who no longer are immortal;—
All, all subdued by Time's o'erwhelming pow'r.

Time overcame the potent Nriṣiṅh;
Who punish'd others, have been punish'd too;
Even the pious Brahman bends to Time
Who the first Av'tar did annihilate.
Relentless Time, all grandeur hath absorbed,
Yet doth he pardon all who worship him.

There is indeed no avoiding the angry effects of Time, but by serving him. Be you gods, or kings, or nobles, or rich, or poor, there is no hope, but in Him. All creation is subject to the will of all powerful Time. You may perform a thousand ceremonies, and make as many sacrifices, but unless you dedicate yourselves to Time, you have no chance of escaping from his power.

Time is all-powerful, destroying equally the rich and poor. The dwellers in heaven do not escape from Him. Those prosper who believe in the power of Time, they thrive who worship Him. The gambols of Time are innocent, his countenance is without parallel. Sin sees it and departs.

He hath large red eyes. He forgives sinners. His face is like the full moon. He is merciful to the wicked.

All the dwellers upon earth are subject to Time, who rules Indra, the Sun, and the Moon.

* Rájá Rávan is said to have made the *Sun and Moon* stand still. The Hindus never do any thing by halves, and Joshua's miracle is simple when compared with Rávan's!

The wheels of Time, to whom all bow, roll throughout the universal world. Rána, Krishna, the Sun and the Moon,—all acknowledge the supremacy of Time.

Krishna, whom the world even now so lauds, Brahmá, Siva, Jogis, Gods, Devils, celestial musicians, snakes, the four Divisions of the World,—all originated in Time, and are subservient to him. Time alone is independent of every thing.

[*Note*.—Here follow a string of praises, which have already been translated : indeed the *Vichitra Nátak* abounds in repetitions.]

Protect me, who resemble the stubble in the field, there is none that assisteth the poor like unto thee. Oh! pardon my offences, though I am always erring. Their coffers are never empty, who serve thee. I trust in Time's powerful arm for protection in this Iron age.

In one moment Time destroyed millions of demons, like Sumb and Nirsumb. In an instant he overthrew Tambarlochan and Chand, and Múṇḍa, also Cháma, Baktachen and Sañkhechúr. So mighty is Time! I regard none, I care for no one but Time.

Time hath annihilated Múṇḍ, Madhkitab, Múr, Ag, and thousands like unto them; who scorned to cover their bodies with shields, whom water could not drown, nor fire consume, at the sight of Time's sword, they fled.

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In one second Time vanquished Rávan, Mherávan and Kúmbhakaran, also Bárud, Nádh and Akampan, who battling successfully against death, conquering Kúmb and Sakúmb, and devastating the whole world, at length washed their reeking blades in the seven oceans. The most mighty, succumb to Time.

If it were possible to avoid Time, whither wouldst thou fly? His sword is ever before thee, whither wouldst thou wander? His sword is ever near thee! The thing hath not yet been begotten, over which Time hath no controul. Idiot! if therefore thou canst not escape from Time, wherefore do you not cheerfully fall down and worship Him?

Many worship Krishna and Vishnú, and profoundly venerate Brahmá, Mohammad, and even the ocean, but they have not escaped from Time, their devotion has not profited them a cawrie, their sacrifices have gained them nothing. When Time willed it, they died. Why do ye waste your labours, oh ye vain worshippers? Ye toil

without profit, and they who promise to save you from Time, cannot save themselves. The wrath of Time is like a raging fire, over which the gods you worship are hanging by their heels, and can they prevent your being treated in the same way? Oh fools! ponder on these serious truths, and be ye sure that without the mercy of Time, naught else can avail ye.

Oh thou egregious animal! why dost thou not acknowledge the power of Time, which ruleth the universe?—Time, the Supreme Being, who alone is able to pardon? It were best that ye sin not at all, but if ye must sin, sin for the benefit of others, and putting away all your other faults, fall at Time's feet. How can it avail thee, that thou prostratest thyself before a stone idol?

What avail thy reserve, thy fits of abstraction, thy ornaments, thy paint, shaving the hair of thy head, or plaiting it in thick folds? Listen to me from your innermost hearts, for I tell you the words of truth, unless ye diligently search for Time, the giver of all good things, and humbly worship him, ye shall not find him: circumcision is hateful to him.

What if ye could turn the regions of the earth into paper, and the seven oceans into ink, every tree into a pen, with Sarasvatí to dictate, and Ganesa to write for a million of years, ye could not gainsay the simple fact, that excepting by entire submission to Time, ye cannot get his mercy and pardon, or please him in the least.

CHAPTER II.

How doth God exhibit his merciful Power? By causing dumb people to preach the Scriptures; by enabling cripples to climb mountains; by making blind men see, and deaf men hear!

OH GOD!

A worm like me cannot reveal
Thy might, which thou alone dost know.
Who hath ever seen his sire born?
Who can explain thy mysteries?
Thou createdst thine own greatness!
Which no mortal tongue can describe.
Thou alone knowest thine own mercy,
None can exalt, none lower thee.

Seshnág, he hath a thousand heads
 And twice one thousand ready tongues,
 With each of which, he sings God's praise,
 But hath not told it all, as yet!
 God's mercy is too abundant
 For mortal man to understand;
 Vain is the task to picture him,
 Whose greatness, all must acknowledge.
 Assisted by his gentle love,
 Most truly, all things I narrate,
 And now about myself, I write,
 I come from the tribe of Sodi.
 Hitherto I have failed to expatiate at length
 On subjects which nevertheless interest me
 Much; it is now my intention to be a little
 More discursive: so listen all of ye.
 When Time first spread himself in space
 The Universe was created,
 Kálsen was formed, of figure
 Indescribable, but lovely. 56
 The second Rájá was Kálkét
 And after him Krúr Baras.
 The fourth, was call'd Kál Tojár "
 From whom came the race of mankind.
 He had a thousand eyes
 He had a thousand feet
 He slept upon Sésb Nág,
 Sésb Sáyi thence was named.
 Lo! from one ear he drew some wax
 And thence Madhkítáb quick was born,
 Then from the other he took more,
 With which, the giant world was made.
 Powerful Time, then Madhkítáb slew,
 Whose fat, mingling with the ocean
 In portions of the sea congealed,
 And thus produced was, the earth.
 And in those first days, all who were

Virtuous and good, were call'd gods.
 And those, who perform'd bad actions
 Were denominated, devils.
 Were I to tell, of all that happen'd
 My volume would exceed in bulk.
 Enough! there were many Rájás
 From whom sprung celebrated Daksh.
 He reared ten thousand daughters
 Of beauty, not to be surpassed.
 These, by Time's indulgent favor
 Were married all, to Rájás.
 Binatá, Kadrú, Dit, Adit,—
 All four, to Rikki were married
 From whom proceeded Gadúdas,—
 The tribes of snakes, gods, and devils ;
 They also, the sun did produce,
 From whom a numerous offspring came,
 Whose names, were I to detail them,
 Would make my work prodigious.
 The tribe of Rag'h, so by the world call'd,
 From the sun, lead its origin.
 And Aj, was the son of Raghú,
 He was great and cherish'd the earth.
 When, becoming absorb'd in God,
 He gave his kingdom to Dashrath,
 Who also, favoured his people,
 And woo'd, and wedded three Virgins.
 These bore him, Rám, also Bharat,
 Again Latchman, and Shattr Ghan,
 They lived for many years, and when
 Their days were numbered, passed away.
 Sitá had two sons, who were kings,
 And ruled, with wisdom and justice,
 These married two lovely maidens,
 From Madrdésh,* and both were devout ;

* मद्रदेश the ancient name for the Panjáb.

They founded two splendid cities,
 One called Kapúr and one Láhór,
 Not Lank,* nor e'en Amrávati†
 So famed, with either can compare.
 Both kings ruled for many a year,
 At length, they were caught in Time's net,
 And dying, bequeath'd their lands
 And virtues, to their progeny,
 Whose descendants are numerous,
 For four ages they peopled the world.
 Among them, were Kálket and Kárái
 Whose progeny is quite countless.
 Kálket was very powerful,
 And expell'd his gentler brother
 Who wander'd till he reach'd Sanand,
 Where he married the king's daughter
 From them, proceeded Sodi rái,
 And Sodi rái gave origin
 To the famous Race of Sodi,
 Which God loves, and hath sanctified
 Their kings have always wisely ruled,
 And conquer'd kings of ev'ry land.
 Their creed is known, throughout the world,
 A canopy covers their heads.
 They have made large sacrifices
 And have subdued the kings of empires.
 They have sacrificed houses,
 And had atonement for their sins.
 At length, the seeds of strife were sown
 Amongst them, which no one could uproot,
 Arm'd bands collected every where,
 The most disastrous war commenced,
 Horrid strife, for lands and wealth,
 Strife, for the riches of the dead !

* Ceylon.

† Heaven of Indra.

Folly, disputes and sinful pride,
 Lust and anger, made the world corrupt.
 Wealth! money! all cried out for wealth!
 The very world became its slave!
 The wealthy alone were worship'd,
 Gold was the Idol men revered.

Mankind ceased to venerate *the* God, they harboured animosities, and pursued Folly and Strife with avidity: they were dead to every thing but wickedness.

Thus I conclude the 2nd Chapter, which contains the history of my race.

(To be continued.)

Analysis of the Bengali Poem Ráj Málá, or Chronicles of Tripurá.
 By the Rev. JAMES LONG.

Dr. Wise of Dacca having presented to the Asiatic Society the Ráj Málá, an ancient Historical poem in Bengali verse, I was requested by the Society to report on it, and also to furnish them with an analysis of the original for the Journal, in order to enable the members to judge of the subject of the poem itself. I hope one day to see the Bengali printed, as though interspersed with a variety of legends and myths, it gives us a picture of the state of Hindu society and customs in a country little known to Europeans,—Tripurá, the Highlands of Bengal, the last country that yielded to the tide of Moslem invasion, and which in its mountain fastnesses retained for so long a period the Hindu traditions unmixed with views that might stream in from other countries. It had been long the chosen abode of Sivism, the aboriginal religion having been supplanted by the latter system, as is indicated by the myth which represents Siva destroying the Asura Tripurá, and Tripurá as being the favourite residence of Siva, a *piṭhasthán*—the right leg of Sati having fallen there. The Bráhmans exercised as arbitrary sway over the minds of the hill chieftains as ever did Druid on the customs of our Celtic ancestors.

“The embroidery of imagination does not entirely conceal the grand-work of truth.” The remark made by Richardson, the compiler of the Persian Dictionary, is fully applicable to such works as the Ráj Málá, the

Raghu Vaṅsa, &c. "The Sháh Námá, like Homer, when stripped of the machinery of supernatural beings, contains much of true history, and a most undoubted picture of the superstition and manners of the times." In all the great historians of antiquity we have facts mixed up with fable, yet we do not reject Roman History notwithstanding the fictions connected with its early history, nor European history on account of the tales told of Charlemagne under the name of Turpin,—why should we not make the same concession with respect to the events connected with Ráma Chandra, the Peter the Great of his day? Ráma's invasion of the South is as firmly established a point as the Norman conquest, and his invasion of Ceylon is as authentic a fact as the siege of Troy. In truth the career of Ráma was one of far greater interest and importance to masses of mankind, than the foray of petty Grecian kings, though dressed up by the magic pen of Homer.

The professedly historical documents of the Hindus are few and meagre. It is chiefly by the clues given in such works as the Rámáyana and Mahábhárata, where fact is blended with fable, as in the novels and poems of Sir W. Scott, that we can grope our way. Yet important data may be elicited even from such writings as these by careful investigation, as was effected by Todd in his Rájasthán, who obtained such useful materials from the poems of Chhand and other bards of Rájputáná. Lassen in his valuable work, the Indische Alterthumskunde, has poured a flood of light on the ancient history and geography of India, derived from the references in the Mahábhárata; he has by a skilful analysis extracted, from a large mass of beautiful and interesting poetry, references which will be of great use to the historians of India, and has thus shown that Sanskrita poetry is not that aggregate of absurd and monstrous fiction that some would consider it to be; for instance the Rámáyana has for its basis the expedition of Ráma to the South, who was the pioneer of civilization to the barbarous aborigines of the Dekhan. Like Peter the Great of Russia, he was obliged to use rough means with a rude people, in order to raise them to a higher status in society; Ráma played as important and useful a part on the world's theatre as either Æneas or Agamemnon, the familiar heroes of College reading.

The *Rāj Málá* or annals of Tripurá were compiled by Bráhmaṇs or the *pradhán mantris* of the Court of Tripurá. Though many of the Rájás despised writing as being what they considered a mere mecha-

nical art, yet like the Chinese emperors they provided for a record of the history of their empire by employing a bard in their Court, and though he bestowed lavish encomiums on the characters of the reigning monarch, yet he affords us information occasionally on various interesting points. Thus for instance the women exhibit a very different character from those of Bengal generally, and in daring and moral prowess remind one of the females in Rájputáná or the Máhrátta country, though we have no account of any equalling Ahalyá Báí in benevolence.

The Rájmalá or history of Tripurá comes in opportunely at the present time, when such an anxiety is shewn by *Savans* to throw light on the manners, religion and history of India previous to the Mohamadan invasion, and also from the country described in the poem presenting various points of interest, whether we look at its position, having the Buddhist kingdoms to the South, the Chinese empire in the East, the ancient kingdom of Kámrup in Assam to the North, or the aboriginal tribes of its frontiers. Its mountain fastnesses and lonely jungles enabled its chieftains, like the Welsh of former times, or the Hugonots of the Cevennes, to maintain a spirit of resistance to intruders, and to preserve down to the last century Hindu manners and customs uninfluenced by the control of Moslem propagandism. Its rulers pride themselves on being of the lunar race, and in their descent from the chivalrous Kshetríyas of Rájputáná* whose lofty bearing and prowess have been immortalised by the pen of Todd and Chaud. While in Bengal the tide of foreign invasion has swept away almost all the ancient Hindu royal lines, the families of Vishnupur and Tripurá have alone remained, though now "in the sere and yellow leaf."

The baleful influence of the Musalmáns on Hindu nationality has in no instance been more destructively exercised than in its having prevented during the Moslem sway all Hindu efforts for the formation of a vernacular literature. Animated by the same recklessness and disregard of consequences which prompted the Norman conqueror to aim at the extirpation of the English language, the Moslem conquerors discouraged the use of every tongue but their favourite Arabic or Persian. This added to the proud disregard in which the *Prákrita*, the dialect of women and Rákshasas, was held by the

* Todd in his "Rájputáná" states, that Tripurá was one of the 84 mercantile tribes of Rájputáná.

Bráhmans, is the cause why we have so few works in Bengali of an ancient date; Kírtibas's translation of the Rámáyana, made two centuries ago, and the works relating to Chaitanya, are almost the only "fragments from the wreck of time" handed down to us.

That Noble Institution Fort William College,—though now shorn of its splendour, through the mercenary utilitarian policy of men who in the pride of Western assumption have frowned on such efforts to cultivate the classic tongues of the East,—fostered a few works treating of the history of this country: Ráma Lochan published his beautiful little work, a model for Bengali style, the history of Rájá Krishna Chandra Ráya of Nadiyá, which presents various interesting sketches of Bengal at the period of the battle of Plassey. The history of Rájá Pratápáditya of Jessore, compiled by another pandit of the same College, also gives us details respecting the Eastern part of Bengal two centuries ago, and of the large settlement and colony formed by Rájá Pratápáditya in a Sunderbund district to the South of Kálná. The Assam Buranjí is also of some use for historic purposes.

These are composed in Bengali, but there is one work translated into English from the Persian which gives us more information respecting the state of Bengal in the last century than any book that has been published yet, the *Seir Mutákharin*, which admits us behind the scenes in the Murshidábád Durbar, and paints to the life the manners and customs of the Bengal Moslems of that period; it was written by an eye witness, who, like the compilers of the *Rāj Taranginí* or Chronicles of Káshmir, has not shunned to point out the vices of men in high station.

The *Rāj Málá* is a curiosity as presenting us with the oldest specimen of Bengáli composition extant, the first part of it having been compiled in the beginning of the 15th century, the subsequent portions were composed at a more recent date. We may consider this then as the most ancient work in Bengali that has come down to us, as the *Chaitanya Charitámrita* was not written before 1557, and Kírtibás subsequently translated the Rámáyana.

The first part of this *Rāj Málá* treats of THE TRADITIONAL PERIOD OF THE TRIPURA KINGS, which is mixed up with various mythological accounts; it informs us that the ancient name of Tripurá was Kirát (the Hunter) from a person of that name of the Lunar or Indo-

Scythian race, the brother of Puru, who was banished to the Eastern provinces by his father Yajáti who held the *Samráṭ* or supreme government of India. He built a city named Tribeg on the banks of the Kupal (Brahmaputra) and subsequently abdicating the throne, he retired to the jungles to devote his life to religious objects. His son Tripurá succeeded him, a profligate tyrant who oppressed the worshippers of Siva; his subjects reduced to poverty emigrated to Hirambru (Káchár), but returned after five years, as Hirambru the Rájá of Kámrup gave them no aid. On this they became votaries of Siva • who promised them a son named Trilochan by the widow of Tripurá, who would be successful, provided he adhered to the worship of the Sun, and Moon, and that they worshipped at break of day, on certain occasions, the fourteen gods, i. e. the Sun, Moon, Himálaya, Kámadeva, Fire, Ganges, Water, Prabhá, Gaṇesha, Kártiká, Brahmá, Sarasvatí, Siva, and Vishnu. In the course of time Trilochan was born and placed on the throne with the unanimous consent of the people, who waved two sacred banners over his head; he was distinguished for his wisdom, and the neighbouring kings paid him homage when he was ten years old: the Rájá of Hirambru offered him his daughter in marriage; he proceeded to Káchár where the marriage was celebrated with great pomp, and for nine days, food was supplied to every one at the king's expense: twelve sons were • the fruit of the marriage.* Kámrup, called also Prágjyotisha, the *Kánúkleśya* of Sanskrita literature, the region of love according to the Hindus, is famous from an early date; Bhagadatta king of Kámrup is mentioned as a warrior in the Mahábhárata; 18 centuries ago marriage alliances were formed between the royal families of Kámrup and Kashmir, the boundaries of the country were extensive, reaching South of the Brahmaputra from Bontáli to Kapálimukh, and on the North from the Karatyá river to the Díkolai. An account of Kámákhya is given in the Káliká Purána: it was the Káli Ghát of North Eastern Bengal.

On the death of the Rájá of Hirambru, a dispute arose among his grandsons as to who should succeed to the throne. On this Trilochan

* The heir to the throne of Tripurá has been always selected from this family, the family marks are a "middle size with a nose of moderate proportion, round body, ears well formed, large chest, small belly, with a neck like an elephant and legs like a plantain tree, arms round as a palm tree; these bodily qualities are to be combined with devotion to Vishnu and Siva."

sent a messenger to the Dandis or priests of the famous College of Mahádeva in Ságar island* to state that Surjya would be present to listen to their prayers when they worshipped the fourteen gods. These priests refused at first to go to Tripurá until they heard that Tripurá, an enemy to the Bráhmans was dead, and that Trilochan his successor being a devotee proposed going to Ságar island to convey them to his kingdom, attended by a large retinue. On their arrival they performed the usual ceremonies to the fourteen gods, together with the offering of buffaloes, ducks were sacrificed which were collected by the Keráts and Kukis. On the great day of the festival all the gods assembled with the exception of Vishnu, the *Dandi* went to invite him, he came, and together with the other gods was so pleased that they promised always to protect the Tripurá Rájá. Trilochan after conquering various countries visited Yudhistir. He lived to an advanced age and was diligent in performing the following ceremonies, *Durgá-Pujá*, *Dol-Játrá*, *Jal-Játrá*, *Surjya-Pujá*, *Padma-Pujá*, *Bisava Sankránti*.†

* The temple of Kapil Muni stood in Ságar island since A. D. 430, but it was washed away by the sea in 1812; the island itself was once densely populated, and contained a population of 200,000, which was swept away by an inundation in 1689. I saw in the *Bibliothèque Royale* at Paris a Portuguese map of Bengal, drawn three centuries ago, which gave the name of five cities to the East of Ságar island on the borders of the sea, the ruins in the Sunderbunds confirm the truth of this description. Mention is made of Ságar island in the Mahábhárata 2600 years ago at least, which shows the antiquity of the shrine there: at that period the Ganges probably disembogued itself into the sea in that direction, flowing down near where Calcutta now stands. The point of confluence with the Ocean would give a sanctity to Kapil Muni's shrine which has been the resort of pilgrims probably long before the Christian era. The Ráj Málá states that the Dandis or Sannyásis "resided in the College of Siva in seclusion for their spiritual benefit, they bathed at day break, dried their clothes by exposure to the air, cooked their own food and were acquainted with all the mantras."

† Several of these *pujás* are not now in use, the *Surjya-Pujá*, like the *Agni-Hotra*, or maintenance of a perpetual sacred fire, has become obsolete; the last man of eminence we have heard of who observed it was Rájá Krishna Chandra Raya of Nadiyá, last century: it was one of the few remaining relics in the existing form of the Hindu religion which kept up a remembrance of the link between the ancient elementary worship of the Vedas and the Fire worship of the followers of Zoroaster. Hinduism can adapt itself to changes of circumstances, thus of late years we see the worship of *Olá-utá Debtá* or the goddess of Cholera.

Dakkhin succeeded in accordance with the wishes of the people and of his father Trilochan, but the eldest son was much annoyed at his brother's receiving almost an equal share of his father's property, only two being reserved for him and also that he did not succeed to the throne, being in Kachár at the time of his father's death. He in consequence declared war and gained a victory after a battle which lasted seven days, the eleven brothers fled to the Khalansha river where they founded a settlement. The brother died in a good old age when he was preparing to abdicate the throne in consequence of a rebellion that broke out.

Fifty-six monarchs succeeded him, whose names alone survive. Kumár, the fifty-seventh in succession visited Samalanagar "the dwelling place of Siva," who at that time fell violently in love with a Kuki. On Siva's wife hearing of it, she kicked the woman so violently as to break her neck. The Linga worship was in vogue on the banks of the Manu, but Siva vexed at the increasing wickedness, and at Rájeshwar, the 60th king of Tripurá in succession, shooting an arrow at his lingam because a son was refused to his prayers, declared he would no more visit Tripurá, though his foot marks should remain in the temples; he stated that the Rájá should have no son to succeed him, yet he promised if he offered up a human victim he would be propitious in other respects: the victim was procured with difficulty, for the people fled.*

Pratit the 69th Rájá, formed a strict treaty of alliance with the Rájá of Káchár on the subject of their boundaries, declaring that "the crow would assume a white colour sooner than they should infringe on each other's limits." The neighbouring chiefs fearing the effects of this alliance sowed dissension between them by means of a beautiful woman† whom they sent to the Rájá of Tripurá; the Rájá of Hirámbu became jealous and threatened to slit her nose and

* This indicates that the practice of human sacrifice could not have been very common at that time, and it also shews it was associated in Tripurá, as in other parts of India, with the worship of Siva.

† The women of Tripurá as well as Ásám were not immured and coerced in the same way as Bengali females are; even in the present day in Ásám "in most parts of the country the women of rank go about in public, quite divested of artificial modesty." The Burmese and Mug women also appear in public.

cut off her ears, a punishment which is often inflicted by husbands in the present day when they suspect their wives of intriguing. Jajárho the 74th Rájá, invaded Rángamáti (Udipur). Nikka the king of Udipur with a disciplined army of 10,000 men assisted by the Kuki troops who erected stockades, fought against the Tripurá Rájá, but was defeated, and Udipur was made the capital of Tripurá. During the battle the Rájá in defiance of a prohibition laid on him in the Lochan Charitra against entering a hut, attacked the king of Udipur in one, as the latter entrenched his men in huts, thinking they would not be assailed. This conquest increased the Rájá's power and he proposed to invade Bengal, but had not the means to execute his plans; though his dominions are said to have stretched nearly as far as Amara-pur in Burmah. The priests of Siva in his time were noted for their attention to the Shástras, drying their clothes by exposure to the air and then removing them with their own hands. Of the Rájá's immediate successors, little is recorded except that some had no sons on account of their wickedness.

In the reign of the 96th Rájá Sangthafah, a Chaudhuri (or principal man of a Hindu corporation,) having been plundered in Tripurá of money and jewels, which he was going to present as a tribute to the king of Gaur, laid a complaint before the Gaur monarch, who sent a powerful army against Tripurá, the king being frightened sued for peace. On this his wife highly indignant abused him for his cowardice, telling him she would fight for him. She said to the soldiers, Your king wants to act the part of a jackal, let those who wish to engage follow me. The troops all agreed, but first she ordered a dinner of buffaloes' and goats' flesh to be prepared for them by their wives, of which they all ate very heartily, the next morning they ate again and then proceeded against the enemy; after a severe conflict they completely routed the forces of the king of Gaur. After the battle, the Rájá while reposing on the tusks of an elephant* saw a bloody head dancing in the air, which indicated that a lakh of persons had lost their lives.

The queen of Khysángafah the 98th Rájá was acquainted with weaving which produced a beneficial effect on the kingdom. "Her son was so virtuous that he had eighteen sons," wishing to know which of them

* Some of the Hill tribes require their chiefs always to sleep with the head reclining on an elephant's tusks as a pillow.

was destined to succeed him, he one day after fasting directed that the person in charge of the fighting cocks should keep them fasting, while he and his sons were at dinner, on a signal given the thirty cocks were let loose and proceeded to touch the dinner which in consequence became defiled, but the youngest, Ratnáfah, threw some rice to the cocks; this prevented their coming and touching his food, and so decided that he was the most quick witted. He was sent after his father's death to travel, and went to Gaur, where he resided several years and was treated with great respect; returning with the aid of Mohammadan troops, he conquered the kingdom and beheaded his brother. This occurred probably in A. D. 1279, when Togral invaded Tripurá. Shortly after he obtained from the king of Gaur 4,000 troops to garrison his chief places and the title of Mánik, which the Rájás of Tripurá have retained ever since.

Dharma Mánik the 104th Rájá travelled as a fakir through various places; when at Benares his future exaltation was signified by a snake twined round his body with his head reared over his person. This is considered by the Hindús a presignification of future sovereignty; they derive the practice from the period when Bhagaván or Krishna slept in the Khiroda Samudra on the back of the snake Ananta who covered him with his expanded hood. Shortly after this, a deputation from Tripurá arrived at Benares, where they found the prince dressed as a fakir; they stated that the Rájá having died of small-pox, the troops would not allow the youngest son to be chosen in preference to the eldest, and he was appointed Rájá, A. D. 1407, with the unanimous consent of the people. "He soon sought the road to heaven" by presenting lands to the Bráhmans, the titles to which were registered on copper-plates. After a peaceful reign of thirty-two years he died. Under his patronage the first part of the Ráj Málá or history of Tripurá kings was composed. His younger son was raised to the throne A. D. 1439, but was soon murdered by a faction, and his brother was elected king; the generals having always exercised great influence in the choice of a Rájá. By the advice of a priest, who told him leprous limbs ought to be cut off, he feigned sickness and being visited by the commanders he had them killed by soldiers who lay in wait in his palace. The fate of these generals, in the penalty they suffered for their imperious and intriguing conduct, resembled that of the Janizzaries of the Turkish

empire who were cut off at a stroke in 1826 ; like them and the Mamlukes of Egypt, these generals appear to have been always more or less involved in political intrigues. The people of Tripurá like the Sikhs were a military race, and their soldiers often played the same part as the Pretorian guards did in Rome. The Rájá subsequently invaded Bengal (some of his troops were taken prisoners by the king of Gaur who ordered them to be trampled to death by field elephants) ; he took Khandal and plundered it so thoroughly that the inhabitants were obliged to clothe themselves in the bark of trees ; after this he returned and devoted himself to works of charity, endowing lands for Bráhmaṇs, giving marriage portions to their sons &c. ; he dug a large tank at Kamilláh called *Dharma Ságar* which occupied him two years ; he once gave a great feast to the Bráhmaṇs and their relations, they had to cook their own food ; he ordered the commanders of the Kuki troops to count their men, they did so with a stick while they were eating, the Kukis were required by their law to drop eating, but through fear of losing their lives they swallowed the food which was in their mouth,—they have had a nick-name applied to them ever since on account of this.

In the city of Thánansi which was the capital of Tripurá until the marauding expeditions of the Kukis caused it to be removed to some securer place,* a white elephant was caught, the king of Tripurá claimed it as his property, but the Rájá of Thánansi refused to give it up, on this siege was laid to the town which lasted six months. Ráya Chachag the Tripurá General, was very much annoyed at this delay, he told his soldiers to betake themselves to the spinning wheel, and in order to stimulate their exertions he had their houses unroofed so as to let in the cold and rain. One day having caught a *guano* 12 feet

* The Kukis have long been noted for their fierce, barbarous manners : like the Indo-Chinese races they have flat noses, small eyes and broad round faces ; their language has a strong affinity with that of the Mugs, and their tradition is that they and the Mugs are descended from the same ancestor. From their mountain eyrees they have often sallied down on the inhabitants of the plains and their adventures often remind one of the "border raids" so graphically described by Scott. Their history is almost a repetition of that of the North American Indians,—the quarrels of rival clans and occasional forays on the more civilized inhabitants of the plains. They were the Mahráttás of the Eastern districts of Bengal, but had not the energy or perseverance of the *Bargi lok*.

long, in order to find out the most accessible part of the fort, the soldiers tied a string to the animal's body and let it loose, it entered the fort and the string served as a clue to the soldiers who passed into the fort, the guards being drunk; all the males were put to death and the females were taken captive, Ráya Chachag then proceeded to the conquest of other countries to the East, he was accused by the Kukis of an attempt to make Samul an independent state, but was acquitted of the charge. In 1512 A. D. he conquered Chittagong and defeated the Gaur troops who defended it.

Haseyn Sháh sent a strong force from the twelve provinces of Bengal under the command of Gaur Málík, which took the fort of Maharkul; but the Bengal troops were repulsed before another fort. At the suggestion of an eunuch in the Tripurá army they made a dike of *Soná Mati* or red earth across the Gumti and bunding in the waters for three days, they then broke it down—the torrent caused all the Mogul troops to retreat. The Rájá Sri Dhyán in order to destroy the enemy offered up a human sacrifice, a black Chandál boy, to Báhbachari (the wife of Siva) on the banks of the Gumti, the head was thrown in among the enemy;* it is said this so pleased the goddess that at night she came among the Mogul troops and made so loud a noise as to create a panic, and the troops all fled from Chandigar. The Rájá marched on Chittagan, the enemy fled and he proceeded further in his conquests. Hoseyn Sháh sent another army under Hyten Khán to conquer Rángámáti, the capital of Tripurá, after a battle which lasted a day, the Tripurá troops were obliged to retreat; on this the Rájá summoned the Dáin or witches to know why they did not aid him; the chief witch promised to stop the stream with her body, and then to rise up and let the torrent sweep away the enemy's troops.

* Human sacrifices prevailed at an early period in Tripurá, and even of late years strong suspicions have been entertained of the practice being occasionally observed at the shrine of Kámákhya in Asám, and at Káli Ghát in Calcutta. But in no part of India were more human victims offered than in Tripurá, which appears to have been one of the strongest holds of Hinduism; the Eastern districts formed favourable settlements for the Bráhmans as is shown by the magnificent architectural remains in Asám of the Hindu conquerors who entered that quarter probably from the North West, while colonies of Bráhmans from Mithilá confirmed by the tie of religion what was begun with the sword.

The historical basis of this myth is probably that the Tripurá troops adopted the same practice as was employed by the Dutch against the Spaniards at the siege of Leyden, viz. breaking down embankments so that the hemmed in waters might sweep away the enemy. The enemy fled, when Hyten Khán arrived at the fort of Sogoria he declared, putting his hand on his head, that he who would conquer Tripurá ought to bring with him double the troops he had, he was degraded on his return to Gaur.

- Sri Dharma having returned to his capital Rángámáti, worshipped the fourteen gods with great pomp, and directed that *human sacrifices* should be offered only triennially, in ancient times one thousand used to be sacrificed every year. He introduced musical teachers from Tirhut* and the Tripurá people, soon became proficient in a knowledge of song. He made an image of Bhubaneswarí of gold, weighing a maund, he placed cotton in her nostrils so that at the pujá time when the *Prána Pratishthá* ceremony is performed, her breath might blow it away, the people all cried out that a miracle had been performed, though a pipe perforating the body and in contact with the mouth of a priest accounts for the whole, we have many instances of similar tricks in Europe in the middle ages.† The Rájá was a great

* Tirhut, the ancient Mithilá which gave a wife to Ráma, seems in former days to have been a *point d'appui* for the Bráhmaṇs in the progress of their influence from North to South: Nadiyá derived its learning from Mithilá pandits, and the far famed Kámrup in Asám, the Paphian residence, received a colony of Bráhmaṇs from Mithilá, who effected the work of proselytism so effectually that "the priests maintained an authority, more exalted, more extensive than they had been able to engross in any other part of India." The temple of Kámákhya near Gauhati is frequented by pilgrims from all parts of India, and is the only temple in those parts which boasts of its *Deva Dási* or temple women; it contains, it is said, 5,000 of these.

Though Bráhmaṇism spread itself in India chiefly by missionary colonies and conquest, yet proselytism was resorted to largely as the histories both of Asám and Tripurá show, it seems in its course from the North to have taken as successive centres of action, Kashmir, Aude, Tirhut and Nadiyá.

† Much injury has been done to the cause of truth by ignorant assertions, such as that the Hindus regard the pieces of stone or clay that they worship to be gods, this is confuted by the fact that the *Prána Pratishthá* or infusion of divinity into an idol is a ceremony without which no sanctity is attributed to it, as may be seen at the time of the Durgá Pujá and other Pujás when the idols are flung into the river after the

worshipper of the lingam, and erected many temples; on one occasion after the bricklayers finished some temples, they admitted they could make them of better materials, the Rájá indignant at their not erecting for him the best temples ordered his attendants to put them to death. The Rájá lived to a good old age, a great worshipper of the lingam; he died of small-pox and his wife performed Sati.

His son Déb Mánik succeeded and marched to Chittagong; on his return he offered a human sacrifice: while worshipping the fourteen gods in the place of cremation, the officiating Bráhmaṇ induced a man to personate Siva and to direct the Rájá to kill his eight champions as a sacrifice, which he did, but soon afterwards finding out that the Bráhmaṇ had practised a deception he intended to kill him, but the Bráhmaṇ anticipated him and deprived the Rájá of life, giving out that he had been killed by the fourteen gods in consequence of not performing their worship with proper ceremonies. This Bráhmaṇ carried on an intrigue with the youngest wife of the late king and the two secured the power in their own hands, but it was of short duration, as the people being indignant with the prime minister assassinated him in his palankin, the pseudo Rájá and his mother were also killed, and were all buried in one grave. The young Rájá who succeeded, finding himself treated as a puppet by the prime minister had him assassinated by one of his favorites who intoxicated him with spirits after dinner. Braja Mánik the young Rájá now made various conquests, the Rájás of Kasyá and Silhet did him homage, the former presented five elephants and ten horses as a mark of vassalage, but the Rájá being vexed at the insolence of the Kasyá prince sent an army of 1,200 Hárís or Mehtars, to fight against him with *Kodúlis* or spades; the Rájá, feeling that great disgrace was to be inflicted on him, persuaded the Rájá of Hirambu to intercede for him, who obtained his pardon and the Mehtars were stopped as they were on their march to Jayntiä.

deity takes its departure from them. This is probably a remnant of that primitive form of Sabian idolatry by which the planets were worshipped as being the residences of certain deities. But whether we regard the defence set up for Hindu idolatry on the Pantheistic grounds, that God being in all matter every thing is part of him, or that idols are symbolic ladders to lead the vulgar from sense to spirit, we see enough to show us that popular idolatry may flourish side by side with a cold system of Deism.

One thousand Páthán horsemen revolted from the Rájá, owing to the arrears of wages not being paid up ; they were on their march to Chittagong, and attempted to kill the Rájá and take Rángámáti, but were secured and the greater part were offered up as sacrifices to the fourteen gods. The king of Gaur sent 3,000 horse and 10,000 foot to Chittagong, the war lasted eight months. In one engagement the Tripurá troops lost their general, Mohammed Khán the general of the king of Gaur was however taken prisoner confined in an iron cage and at the instigation of the head Bráhmaṇ priest, was sacrificed to the fourteen gods.

At this time Bijaya Rájá of Tripurá marched to Bengal with an army composed of 26,000 infantry, and 5,000 horse besides artillery ; he went by 5,000 boats along the streams Brahmaputra and Lakhi to the Padmá ; at Sonárgán, where he spent several days revelling in licentiousness, he took into his seraglio many beautiful young women ; he crossed the Brahmaputra by a bridge of boats and invaded Sylhet, where he dug several tanks, but his soldiers were very fond of plundering the people and one day they destroyed a village, the natives all fled, with the exception of a woman who caught one of the plunderers by the leg, he tied her by her hair to a post so that she could not move, on her husband returning in his indignation he beat the trooper so severely that he died ; the Rájá ordered all the natives of that village to be punished ; after making presents to the Bráhmaṇs he returned to his capital Rángámáti where he devoted one day to distributing gifts called *Kalpa-taru*,* i. e. whatever request any one makes to the Rájá he is to obtain it, but this is limited to one day and only a select number are admitted into the palace to make application. The astrologer having declared that his youngest son Ananta would succeed to the throne, the Rájá sent his eldest son on a pilgrimage to Orissa. Ananta married the daughter of Gupi Prasád, the commander-in-chief ;†

* The *Kalpa-taru* or *Kalpa-brikshya* was one of the fabled trees of Indra's heaven, eating the fruit of which would effect the accomplishment of any wish, like the *Kámadhenu* or cow of plenty mentioned in the *Raghu Vansa*. The English fairy tales give us a similar object in Fortunatus' wishing cap, while the Arabian Nights abound with references to this. Probably some floating traditions respecting the tree of knowledge in the garden of Eden may have given rise to this notion of the *Kalpa-brikshya*.

† This man's life shews how men of low origin often rise to power. In these times Gupi was originally the Rájá's Gomásthá at Dharmanagar, while there he

his father soon after died of small pox having reigned 47 years, his corpse was followed to the pyre by a great number of women.

Ananta Mánik succeeded to the throne by the help of his father-in-law the quondam cook, with whom Ananta always dined. After the king reigned 1½ years he was strangled at the instigation of his father-in-law who mounted the throne under the title of *Udaya Mánik*. His daughter demanded to burn as a *sati* with her husband, but this was refused, she then claimed the throne and was allowed to be *Ráni* of Chhandipur, while Udaya made Rángámati his capital, which he adorned with beautiful buildings, temples, and tanks, changing its name to Udayapur. He kept 240 wives who were so dissolute that they persuaded not only other men but even the prince of Gaur to cohabit with them, as he was on a visit to the Rájá of Tripurá. When the Rájá heard of it, he had some of them trampled to death by elephants, and others devoured alive by dogs. As the Patáns were marching on Chittagong, the Tripurá troops were sent to attack them, which they did during the night, notwithstanding the unfavourable omens of the flapping of the vulture's wings, falling of fire from the sky and the barking of foxes. The Tripurá troops were routed with a loss of 40,000 men while the Patáns lost only 5,000. The war lasted for five years. Udaya Mánik died five years after this from having taken a poisoned pill of quicksilver given by a woman. At this period numbers died from famine and from disease the result of it.

Jaya Mánik, the son of the late king, succeeded, but only nominally, as his uncle Runág Náráyan had the real power; as the latter saw that Amara Mánik had great influence, he asked him one day to dinner with the intention of intoxicating and then killing him, but a friend at table by cutting the stalk of a pán leaf hinted to him the intention of his enemies, he pretended to be unwell retired from table and went instantly to the stable—but the horse was gone! on this he seized by force the horse of a Khaista and made his escape. He soon rallied his friend's sons around him and proceeded to attack Runág, he provided each of his soldiers with a piece of cloth 9 feet long to strangle their enemies

climbed a tree belonging to a Bráhmaṇ who beat him so severely that he was driven from the place in great disgrace, he became a cook to the Rájá, then a Chaukidár, afterwards having taken an oath on the Sálagráma he was appointed Commander-in-Chief and his daughter was subsequently married to the Rájá's son.

in the same way as Runág had intended to strangle him. Runág being in a fort sent to his brother for troops, but a forged letter was carried by the messenger and the brother was so joyous on receiving it that he prostrated himself on the ground, the messenger on this as instructed, cut his head off and it was thrown into the fort, this so terrified Runág that he ran away to an uninhabited place, his enemies found him subsequently in a tank where he had been for two days immersed up to his chin having his head covered with a rice pot, the head was cut off by a soldier and carried to Amara Mánik who gave him the name of Sáhas Náráyan. Jaya Mánik sent to ask why he had killed his relation, he answered by dispatching troops against the Rájá, who fled and was overtaken : his head was cut off.

Amara Mánik mounted the throne, he was the brother of Bijaya Mánik, his mother was a private individual whom his father fell in love with, struck one day with her beauty as she was drying her hair in the sun. Amara Mánik resolved on virtuous deeds by digging tanks ; he ordered all the landlords of his kingdom to send coolies for this purpose, accordingly nine zemindárs sent 7,300 coolies. The zemindár of Taraf in Sylhet refused, an army of 22,000 men was sent against him, his son was taken prisoner, put into a cage, and brought to Udayapur. The Rájá next (A. D. 1582) marched an army against the Mohammedan commander of Sylhet, whom he defeated. The order of the troops in battle resembled in figure the sacred bird Gaḍuḍa, the two generals in the van represented the beak,—the troops on the flanks the wing, and the main army the body ; during the fight both parties became fatigued when a suspension of arms took place by mutual agreement ; they afterwards resumed the battle, when the Musalmáns were defeated. Sylhet from this time (A. D. 1514) became tributary to Tripurá. The Rájá next defeated the zemindárs of Balarám who refused to submit, on the ground that Amara Mánik was not of the royal line, but he was also defeated. On this occasion a Bráhmaṇ was accidentally killed, which caused great grief through the kingdom and the king made a private atonement for it. After this he sacked the fine city of Báklá and sold the men as slaves. He then returned to his capital and performed a grand ceremony on the completion of his tank as also the ceremony of *túla* or presenting to a Bráhmaṇ gold of the same weight with his own body.

While the Tripurá people were enjoying the seclusion arising from their insulated position a new enemy, the Muhammadans, made their appearance and invaded the country, A. D. 1587. Delay in defending the land was at first caused by the Tripurá commander Issáh Khán waiting for a lucky day, but at last he obtained the consent of the Viziers to furnish him with troops, and he also won the favour of the *Ráni* who tested his sincerity by giving him the water in which she had washed her body : he drank it. 12,000 troops marched against the Musalmáns who fled without coming to action.*

The *Bhút* or *Devils* are said to have been hostile to the Rájá at this time, because he cut down *Bat* trees under which they dwelt, their presence having been known by the trees shaking without any natural cause. When the Rájá cut down the trees, water gushed out which formed a lake and in order to appease the anger of these Devils he offered up human sacrifices, but in vain, on the banks of the tank. The people were greatly alarmed at this time, at the spread of rumours that 125 boys must be immolated to propitiate the devils, and that Udipur and the whole country would be destroyed by an inundation.

The Rájá subsequently declared war against Arrakan, invaded it and took many places, he was repulsed by a junction of the *Mug* troops with the *Portuguese*,† but he regained his ground ; the Rájá sent a letter to the king of Arrakan, challenging his troops to battle, the latter replied that he would postpone fighting till next year ; the Rájá

* This presents a wide contrast to the behaviour of the Bengalis when invaded by Bakhtiyár Khiliji, the Muhammadans met with no resistance ; but this must be stated on the other side that Nadyá was deserted previously by the nobles owing to a conviction that resistance would be vain. However in one place the Bengalis subsequently fought for their independence—on the field of Panduá near the Burdwan road,—the *casus belli* was—the Hindus finding the bones of a cow which had afforded the materials for a feast to the Muhammadans, in revenge killed a Muhammadan child, troops were marched against the Hindu Rájá of Peruyá, and after a hard contested battle the last spark of Bengali independence was extinguished.

† This is the first notice taken of the Portuguese, though they had come into Bengal in 1566, as mercenary troops in the service of the king of Gaur. They carried on a system of plunder and piracy which would have disgraced even the buccaneers of the West Indies, the desolate state of the Sundarbans, now the abode of alligators and tigers, but once affording a residence to an industrious and numerous population, bear witness to the depredations of the Portuguese.

concurred in this and both agreed to fight before the celebration of the Durgá Pujá, in order that the slain might be offered as sacrifices to Durgá. The Tripurá troops accordingly retired into winter quarters. But Sekandar Sháh the king of the Mugs did not wait for the Durgá Pujá, he invaded and took Chittagan. The Rájá of Tripurá sent an army under the command of his three sons to repel them. On this the king of the Mugs wished to make peace and sent the brothers a crown of ivory as a present, a dispute arose among them as to who should possess it, and one who lost it abused the Mugs. This led to a battle, the Mugs were defended by stockades, and on Jagier, one of the Rájá's sons, attempting to mount a wounded elephant, the animal maddened with pain, seeing his ornaments seized him and trampled him to death: the Tripurá soldiers fled; another battle was fought which was gained by the Mugs in consequence of a disagreement between two thousand Patan cavalry. The Mugs marched on to Udipur which they plundered, A. D. 1587, the Rájá fled to the forests of Dum Ghát.* In consequence of these misfortunes, as well as from bad omens and unpleasant dreams, the Rájá resolved to destroy himself, having bathed in "the sacred Mani river," he swallowed a quantity of opium and died, in the course of a day.

He was succeeded by his son Rájadhara Mánik, the Ráñi his mother performed Sati "decorating her person with all" her ornaments and directing Ráma's name to be written on her body." Rájadhar in opposition to the wish of his nobles gave away much land to the Bráhmaṇs stating that in his old age he might not be able to do so; he was an enthusiastic Vishṇuvite, employing eight singers to chaunt the praises of Hari day and night. He did not perform the most trivial action without the order of his head Bráhman. He erected a temple to Vishṇu and surrounded it with a flower and fruit garden in which he worshipped every day. Adin 'Tagrul king of Gaur thinking him

* The Mugs are of the same race with the Kukis to whose language the Mug bears a strong affinity. They have at various times exhibited a considerable amount of energy, and at one period they contended with the Burmese for the sovereignty of Asám. They resemble in their career the Mahrattás, but history does not hand down to us any great leaders; being governed in the patriarchal mode by chieftains and divided into clans, they could not bring a centralising power to bear on their conquests.

peaceable, sent troops to plunder the country, but they were repulsed. The Rájá one day absorbed in meditation, while walking on the banks of the river Gumti and drinking the water in which the image of Vishnu had been washed, fell into the river and was drowned.

Jashadhara Mánik succeeded him, A. D. 1591. Haseyn Sháh king of the Mugs, continued at war with him for twenty-one years, and the Muhammadans by the direction of Jehángir, who wanted horses and elephants, invaded Tripurá; the Moguls proved victorious headed by the Nawab Fattah Jang, the capital was taken and the Rájá was sent a prisoner to Delhi: he was allowed to go on pilgrimage to Benares, Allahábád, Mathrá, Brindában, and was offered his throne again on condition of paying tribute in horses and elephants, but he declined, saying, his country was too much impoverished by the devastations of the soldiers to allow of being taxed. He died at Brindában of fever in the seventy-second year of his age "while meditating on the excellency of Vishnu," his body was burnt with costly perfumes.

In the meanwhile the Mogul troops were guilty of great atrocities in Tripurá, plundering the temples and robbing the inhabitants, they even drained the tanks in search of treasure; they continued this course for two years and a half, until a dreadful plague caused them to leave the country.* Kalyán Mánik was raised by the nobles to the throne, in the year 1625; he coined mohurs in Siva's name and his own, he made a tour of his dominions distributing money and land to the Bráhmans whom he held in such reverence that he made them eat before him, he was also kind to the poor and equitable to his subjects. The emperor of Delhi finding he refused to pay tribute directed the Nawáb of Murshidábád to send an army against Tripurá, the troops carried with them a famous cannon made of *leather*, but they were

* It is owing to similar conduct of the Musalmáns as well as the effects of climate that we have so few remains of antiquity in Bengal. No regard was paid to any thing Hindu. In Gaur which is said to have been the capital of Bengal 750 B. C. almost every Hindu monument has disappeared long since, having been either destroyed or used for Muhammadan purposes. The policy of the Muhammadans in Bengal was like that of Edward the Third towards the Scotch,—the destruction of every remnant of a people's nationality and ancient memorials; the Muhammadans made an effort, but a vain one, to extirpate the Bengali language by making the Persian the only one recognised by Government and discountenancing every effort to create a Bengali literature.

defeated. The Rájá then applied himself to devotional objects, he observed the ceremony of *tulá*,* gave presents of horses, elephants, &c. to the Bráhmans and particularly to those who came from Mathrá, Benares, and Orissa, he paid the travelling expenses of those Bráhmans who were desirous of making a pilgrimage. He died A. D. 1659.

We make a passing remark that though Bakhtiyár Khiliji the conqueror of Nadiyá, invaded A-án, he found the people not the feeble race he had met with at Nadiyá, and retired broken-hearted from defeat. It was not until a late period the Musalmáns entered Tripurá led by a desire to obtain elephants which they wanted for military purposes.

A. D. 1659, Gobinda Mánik mounted the Tripurá throne, his wife was a devotee who dug a tank called after her own name, she had also coined mohars in which her own name was on one side, that of the Rájá and Sivá's on the other. The step-brother of the Rájá, having obtained assistance from the Nawáb of Murshidábád attempted to gain possession of the throne; the Rájá being a peaceable man and not wishing to fight with a relative, fled to the king of Arákán, who gave him an hospitable reception, and Chattra Mánik obtained possession of the throne, but he died of small-pox after a reign of seven years.

While Gobind was at Arákán, Sháh Sujá, the son of the emperor Sháh Jehán, came there; having been defeated by his brother and disgusted with the world, he marched through Tripurá to Arákán in order to embark thence for Mecca where he intended to end his days, he was received very kindly by the ex-Rájá of Tripurá who gave him a Nimchá sword as a mark of his gratitude. But the king of Arákán pretending that Sháh Sujá had conspired against his life by sending soldiers in disguise into his palace in *dulis*, in order to assassinate him, resolved to kill him, but being a Buddhist he could not shed blood except in battle, he had him therefore bound and put into a boat on the river, a plank being taken out of the boat it sank with Sujá fast bound in her, the King satisfying his conscience by drowning him, and not shedding his blood; the consort of Sujá plunged a dagger into her bosom rather than submit to the embraces of the Rájá of Arákán; while her daughters poisoned themselves.

* Since Hindus have ceased to be the rulers of India the ceremony of *tulá* to the great pecuniary loss of the Bráhmans has ceased to be observed in India: it consisted in the king's giving his own weight of gold or silver to the Bráhmans.

The usurper having died, Gobinda was again elected to the throne; he sold the sword given him by Sháh Sujá, and devoted the money to objects of utility; he gave presents of salt to all the people of Udipur, cultivated the wastes of Maharkul, and granted land at a reduced rent to the Bráhmans, confirming his donation on copper-plates; he died much regretted, and was succeeded by his son. During his reign intrigues were made with the Nawáb of Murshidábád* to dispossess him of the throne—but in vain.

Ratna Mánik succeeded when only five years old, when he grew up he married one hundred and twenty wives; the heir apparent was guilty of great cruelty, on which account Shaistá Khán, Nawáb of Bengal, took him prisoner and sent him to Delhi.

Narendra Mánik usurped the throne through his influence with the Nawáb of Dacca, but his deceit being found out, the Nawáb deposed him and reinstated the former Rájá; but he did not hold it long, as his brother by intriguing with the Nawáb of Murshidábád gained the throne; his ministers telling him that as two tigers cannot remain in the same jungle, nor one wife with two husbands, so neither could he remain with the old Rájá; he therefore had him strangled, but after that period he never enjoyed peace, being haunted with dreams of some person strangling him in the same way as he had strangled his brother, he gradually wasted away in flesh.

Dharma Mánik succeeded. The Nawáb of Murshidábád having deprived him of a large portion of territory on the plains, locating Mogul zemindars in them, and the Mogul troops at Udipur proving a great annoyance, the Rájá resolved to destroy them: he invited them to dinner and intoxicating them with strong liquor, he had the palace gates shut when all were killed with the exception of a few who climbed the walls and so escaped.

At this time, A. D. 1739, Jagat Ráma, the son of Satra Mánik, who had long lived an exile from his country at Dacca, induced the Nawáb of Dacca to send an army to enforce his claims to the throne of Tripurá, he promising to pay up the arrears of tribute; the Muham-

* This statement of Murshidábád being the capital contradicts the accounts of the historians that until 1701 Jaffier Khán did not remove the seat of government from Dacca to Murshidábád, which received its name from Murshid Kuli Khán. However mention is made of the place in the reign of Akbar.

madan troops however were defeated, but in a second invasion the Rájá fled and Jagat Rána was made Rájá, a large body of Moslem troops was stationed in Tripurá, its name was changed to Raushanábád, or city of light : as it was an essential part of the Moslem polity wherever they gained an ascendancy to alter the names of persons and places, like the Russians with their Panslavism, they aimed at making the Arabic language as well as religion predominant wherever the Crescent shone. In a similar way the Muhammadans in India made a knowledge of Persian a *sine quâ non* as a qualification for office, their great policy was to denationalize the Hindus by discouraging the study of the Sanskrita and Vernacular languages,—but after the operation of this system for six centuries in Bengal, what has been the result? When the glorious measure of Lord W. Bentinck was promulgated, directing the Vernaculars to be the language of the Courts, Persian found few advocates except in interested Amlas and Maulavis who realised their profits by mystifying the people through the veil of a foreign language. Persian as a branch of education is almost extinct in Bengal except in a few Madrassás.

By ingratiating himself with* Jagat Set, the wealthy banker of Murshidábád, the old Rájá regained his throne, and reigned for eighteen years subsequently; he had the Mahábhárat and other old books translated for him. His son succeeded him and refusing to pay tribute he was taken prisoner, but to avoid further indignities he poisoned himself. Jaya Mánik succeeded, but the eldest son of the late Rájá, who had long resided at Murshidábád, through his influence with the Nawáb gained the throne, promising to pay up the arrears of tribute; but he did not remain long on it, an intrigue was formed against him at the Court of Murshidábád, and Indra Mánik was placed on the throne by the Nawáb, an intrigue was formed against

* *Jagat Set*, or the banker of the world, a title he received from the Court of Delhi, was a member of a Jain family, as famous for banking transactions as the Rothschilds; Burke said of them that their transactions were as extensive as the Bank of England. Holding the purse strings they possessed almost unlimited influence at Murshidabad which continued until the Exchequer was removed to Calcutta in 1772. At one period when the Mahrátás plundered Murshidábád Jagat Set lost one crore of Rupees, but the loss seemed to trouble him little, he had so much treasure in store.

him also at the Nawáb's Court, but he went in person to the Nawáb promising to pay the arrears ; he obtained a certificate of his proficiency in the Persian language. He died after a reign of four years.

Bijaya Mánik was appointed Rájá by the Nawáb with a salary of 12,000 Rs. monthly, on the stipulation of sending all the revenue to Murshidábád—but falling into arrears he was sent prisoner to the capital, where he died in confinement some time after. Samsher Jang obtained the government and agreed to pay the revenue without any delay, but the people not recognising him as the legitimate heir, he then installed as Rájá, one of the Tripurá family, who resided at Sonárgán, but they still refused ; a battle was fought in which Shamsher was victorious ; he governed for twelve years with such cruelty and caused such loud complaints to be raised on account of his atrocities that the Nawáb had him seized and blown from the mouth of a gun. Kishen Mánik succeeded. The Dewán of the Nawáb collected all his forces at Chittagan and advanced against the Rájá of Tripurá who was defeated at Kasbá. He soon after died.

After an interregnum of five years in consequence of disputes as to who should succeed, in which the Kukis were called in by one party as combatants, Durgá Mánik, the Jubarája, received from the English government the Khelat as Rájá in 1808 ; after four years he proceeded with his family on a pilgrimage to Benares, Prayág ; while on his way to Gayá he died near Patna and was burned on the banks of the Ganges. His late rival Rána Gangá was appointed by the English Government Rájá according to the Tripurá laws of succession, though several of his rivals disputed his title by force, the Kyphangs aided one party, but the English soon decided the difficulty. The Rájá sent presents to the Governor General, and on the occasion of his installation gave a magnificent feast ; he applied himself then to religious duties, having built a temple at Brindában at an expense of 24,000 rupees. He erected a temple to Siva at Gangá Sagar, cleared out the tank there, and gave the rent of several villages for supplying the fourteen gods on that island with boiled rice ; the Kukis revolted but were subdued, and consented to pay their usual tribute of coins and ivory. In 1822, the people of Haramba submitted to the English Government, having been previously very much oppressed by the Burmese.

In 1765, Tripurá came under British rule, the income of the Rájá then, was about 300,000 rupees. Krishṇa Mánik was made Rájá by the aid of the English, having succeeded to Shamsheer Khán noted for his cruelty and tyranny. He performed the ceremony of tulá and gave away large sums of money, particularly to the paṇdits of *Nadiyá*,* though he could not be as liberal as before, English collectors being appointed in the country. Krishṇa Mánik died after a reign of twenty-three years, there being no Jubarája, his queen ruled the country for some time, but the people did not submit willingly to her sway ; she then petitioned Government who confirmed her request that Rájendra Mánik, her nephew, might succeed, which he did A. D. 1785. Cotton was cultivated in Tripurá in his time, and an invasion of the Mugs was repelled, the revenue collected by the English amounted to 1,39,000 Rupees. The Kukis were also punished severely by the Rájá for an inroad made on the country. Rájendra married the daughter of the Rájá of Manipur ; he made an image of eight metals which he placed in the sanctuary of Brindában ; he became a great devotee, spending four months in prayer to the gods without speaking to any one, he then abdicated the throne and assumed the habit of a Sannyási ; he died soon after, having reigned 19 years.

In 1826, the Rájá died, when dying he sent for his spiritual guide and put his *foot on his head*, an *eclipse of the moon* occurred at the same time, which was considered a sure sign that the Rájá would go to heaven ; when he became insensible, a *sálagráh* was placed on his breast. On the occasion of his *Sráddha* 18,000 Rupees were distributed among the poor, which was collected by *subscription*, as the Rájá's brother was too much in debt to afford it. The late Rájá reigned eleven years, he was accomplished in the Persian language, and also serving and firing a

* The paṇdits of Nadiyá have for several centuries exercised considerable influence in the East of Bengal, and in the district of Asám they made great progress in their proselyting efforts, though it is a popular notion that Hinduism admits of no proselytes, yet various instances could be adduced on the opposite side. The fact that the Asámese language is almost a pure derivation of Sanskrita, though the early conquerors the Ahoms were not a Hindu race, shews the powerful ascendancy that Hindu Institutions must have attained at an early period over them : Bráhmaṇism now is stationary in its proceedings, but in former days it seemed as anxious to vend its spiritual wares as are the Mahrwári and Mogul merchants to dispose of their articles in trade.

gun quickly; his bones were sent to Brindábana. The Jubarája Kási Chandra was nominated by the English Government his successor, who sent to him a Khelat of honor consisting of the following articles,—a short sleeved jacket, a large dress, turban, a cloth band to encircle the head, gold band for the head.

The Rájá was noted for his dissipated habits and his respect for the Bráhmans; he died in 1829 after a short reign of three years; his Ráni on hearing of his death, committed suicide.

The portion of this history, relating to the English period, contains little matters of interest beyond the squabbles between Rájás and Collectors, expensive marriages and feasts given to Bráhmans by zemindars as deeply involved in debt as some of our Chowringhee magnates.

There are a few points omitted in this history which are rather singular—no mention is made of Dacca though it carried on a trade with the Romans, and its muslins were used by the ladies of Rome in the days of the Cæsars. No reference is made to Buddhism, though it was at one period the predominant religion in Bengal, and extended its sway from the Indian Ocean to the frontiers of China: this may be accounted for, perhaps, on the ground that those chronicles were composed by Bráhmans who may have adopted in them their usual policy of taking little notice of their religious opponents, passing over their history in contemptuous silence.

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL

FOR OCTOBER, 1850.

The usual monthly general meeting of the Asiatic Society was held in its Rooms, on the 2nd instant, at half-past 8 p. m.

WELBY JACKSON, Esq., Vice-President, in the Chair.

The proceedings of the last meeting were read and confirmed.

Read letters—

1st. From W. Seton Karr, Esq., Under Secretary to the Government of Bengal, forwarding, for the use of the Museum of Economic Geology, a Map of the Cuttack district.

2nd. From Sir H. M. Elliot, Secretary to the Government of India with the Governor General, transmitting, for publication in the Society's Journal, a Statistical Report on the Spiti Valley together with a sketch Map drawn up by Capt. W. E. Hay, Assistant Commissioner in Kulu.

Ordered—that the thanks of the Society be conveyed to the Most Noble the Governor General for the report.

3rd. From Dr. G. Buist, Bombay, enclosing a paper on the general vibration or descent and upheaval, which seems, at a recent geological period, to have occurred all over the northern Hemisphere. Ordered for publication in the Journal.

4th. From W. Seton Karr, Esq., Under Secretary to the Government of Bengal, presenting two copies of a Map of Arabia for the use of the Society's Library.

5th. From Capt. J. C. Hannyngton, Chota Nagpur, forwarding a note to be appended to the Barometrical Tables, lately presented by him to the Society.

6th. From Dr. T. S. Wise, submitting the following extract from a letter of his brother J. P. Wise, Esq. respecting the History of the Tipperah Raj lately forwarded by him for publication in the *Bibliotheca Indica*.

“The Rájmállá of the Tipperah Family which bears all the marks of antiquity, is kept with the greatest care by Wazier or Rájpandit. He gave me the original MS. for a few days to copy, as a great favour. I was at the time in charge of the Maharájá’s affairs, and I have every reason to believe it to be a genuine record of the Tipperah Family.”

Ordered that the letter be brought forward for consideration, on the receipt of the Rev. Mr. Long’s report on the original MS.

7th. From E. Blyth, Esq., communicating a short note on the Bird-devouring habits of a species of spider, by Capt. W. S. Sherwill.

8th. From Capt. M. Kittoe, Benares; enclosing a note on an inscription engraved upon a brick found some years ago in a field near a village in the Juanpore district, also a transcript from the original, and a translation by James Ballantyne, Esq. Principal of the Benares College, and suggesting that the second part of the Naishada be printed in the *Bibliotheca Indica*.

The Secretary stated that the work named by Captain Kittoe, is in the press, and will shortly be published.

9th. Extracts were also read from a private letter of Capt. Kittoe, offering to send down a large collection of Buddhist sculptures from Benares. Referred to the Council.

10th. From B. H. Hodgson, Esq., forwarding Vocabularies from the North Western Frontier and Ceylon in continuation of his series of Vocabularies intended to exhibit the glottological affinities of the whole of the aborigines of India.

11th. From Mr. Blyth, enclosing a continuation of his *Conspectus of the Ornithology of India*.

12th. From Capt. T. Latter, submitting a work entitled, “*Selections from the Vernacular Buddhist Literature of Burmah*,” and soliciting the Society’s patronage to the same. Referred to the Oriental Section.

13th. From R. W. G. Frith, Esq., forwarding a specimen of Nepal paper presented to the Society by C. Chapman, Esq.

14th. From Dr. E. Roer, submitting an extract from a letter of professor Wilson to Dr. Ballantyne, recommending the publication of the text and an English translation of the Anumāna Khanda; also the subjoined from a letter of Dr. Albert Weber.

Extract from a letter, from Dr. WEBER, dated the 25th July, 1850.

"I have received the fourteen first Nos. of the Bibliotheca Indica and Dr. Hæberlin's Anthology, for which valuable presents, I return my most sincere thanks to the Asiatic Society. I have given a notice of those works in the third number of my Journal, "Vedaic Studies." The Bibliotheca is indeed a splendid undertaking, and we are much indebted for it to the Asiatic Society, and to yourself. Lassen also, in the last number of his Journal, has spoken of it in high terms.

Messrs. Duemmüller and Co. will in about eight days forward to Messrs. Allen and Co. the 20 copies of the two first volumes of the Yajur to which the Asiatic Society has subscribed. Dr. Marwitz rather wishes to receive the amount of the subscription in money, than its value in books, as the subscription has not yet covered the expenses of the edition. Has the Society authorized Allen and Co. to pay the amount of the subscription? If not, you will much oblige me by requesting the Society to give directions to Allen and Co. to that effect. As this time the copies of two volumes will be despatched at once, the sum will amount to £40. The third volume is to appear at the end of February, 1851.

You appear not to have received the first number of my "Vedaic Studies" when you wrote to me (3rd May), and yet I sent it already on the 7th Aug., last year, to Messrs. Allen and Co.

Stenzler is zealously employed with an edition of the "Grihyasūtras by Aswalāyana, Parasāra and Gabhila," and all these labours are preparatory to a complete history of Indian law which he intends publishing. Hocfer, of whom a Sanscrit Anthology lately appeared, is to edit Vararuchis Prakrit grammar. Aufrecht and Kuhn publish a journal for the comparison of the Latin, Greek, German and Sanscrit languages. Bergstadt in Upsala has published Sankara's Jñānabodhinī, and will soon edit the Brahmasūtras with the commentary of Sankara. Spiegel of Erlangen prints here (in Berlin) his Pazend Grammar, and his great edition of the Vendidad Sadi with Pehlvi, Sanscrit, Persian and German translation will soon be commenced. An excellent commentary on Hiob (Job) has been published here by Schlottmann. Langlois in Paris has already edited the first four Ashtakas of the Rig in a French superficial translation. A reprint of Wilson's dictionary will, with his permission, be made by Auber and Co."

After some discussion as to the propriety of allowing a synopsis of the proceedings of the Society to be published in the newspapers, it was proposed by Mr. J. R. Colvin, seconded by Capt. Broome, and resolved, that it be left to the discretion of the Council, by direction to the Secretary, to allow an abstract of the Society's proceedings to be published in the newspapers.

The Zoological Curator and Librarian having submitted their usual monthly Reports the meeting adjourned.

Confirmed at a meeting held on the 6th November, 1850.

WELBY JACKSON, *Vice-President*.

FLETCHER HAYES, *Secretary*.

Report of Curator, Zoological Department.

To the Secretary of the Asiatic Society.

SIR,—I have this month to report the presentations of,

1. From Babu Rajendra Mullick, the carcass of a dwarf long-haired goat, from Sikim; and of a young female of the *Ovis Gmelin*, nobis, received from Bussora.

2. From R. W. G. Frith, Esq. a dead Australian Parrakeet (*Melopsittacus undulatus*).

3. From Messrs. Cook and Co. the carcass of a newly born foal, since prepared as a skeleton.

4. From Wm. Theobald, Esq., Junr. a skin of *Manis javanica*; and two specimens in spirit of *Rhinolophus lepidus*, nobis,—the latter from near Colgong. According to Mr. Theobald, only 3 or 4 pairs of this Bat inhabited the large cave in which he captured the pair presented for the Museum.

I have the honor to be, Sir,

Obediently Your's,

E. BLYTH.

Asiatic Society's Rooms, Sept. 30th, 1850.

LIBRARY.

The following books have been added to the Library since the last meeting.

Presented.

Journal of the Archæological Society of Delhi—Sept., 1850. (2 copies.)
—BY THE SOCIETY.

Report of the Revenue Administration of the Lower Provinces, for the official year 1848-9.—BY THE GOVERNMENT OF BENGAL.

Maps of the Damudah and Adji Coal Fields in the Zillahs of West Burdwan, Manbhoom and Beerbhoom, in Bengal, with sections of Coal Beds, &c. (2 sets).—BY THE SAME.

Map of Arabia, compiled from all the most recent authorities, by order of the Court of Directors of the East India Company. By John Walker, (2 copies).—BY THE SAME.

Map of the District of Cuttack, surveyed by Lieut. R. Smith, Bengal Artillery.—BY THE SAME.

Journal of the Indian Archipelago, for July and Aug. 1850, (2 copies).—
• BY THE SAME.

Ditto ditto, for Aug. 1850.—BY THE EDITOR.

The Oriental Baptist, No. 46.—BY THE EDITOR.

The Calcutta Christian Observer for Oct. 1850.—BY THE EDITORS.

The Oriental Christian Spectator.—BY THE EDITOR.

Meteorological Register kept at the Surveyor General's Office, Calcutta, for the month of August, 1850.—BY THE DEPUTY SURVEYOR GENERAL.

Exchanged.

The Athenæum, Nos. 1186 @ 1190.

FOR NOVEMBER, 1850.

The Society met on the 6th instant at half past 8 p. m.

Hon'ble Sir JAMES COLVILLE, President, in the Chair.

The proceedings of the last meeting were read and confirmed.

John Reddie, Esq. was named for ballot at the next meeting; proposed by the President and seconded by Rev. J. Long.

Read letters—

1st. From J. G. Forbes, Esq., officiating Secretary, Bombay Branch of the Royal Asiatic Society, forwarding a copy of the 13th number of the Transactions of that Society.

2nd. From J. Thornton, Esq., Secretary to the Government of the North Western Provinces, announcing that the Hon'ble the Lieutenant Governor has been pleased, in compliance with the request of the Society, to direct Mr. E. A. Reade, Commissioner of the Benares Division, to give such assistance as lies in his power to Capt. Kittoe in his archaological researches in that district, when the important duties which now occupy his time and talents admit of his attention being diverted.

3rd. From D. W. Mitchell, Esq., Secretary to the Zoological Society of London, communicating the thanks of that institution for the Journal of the Asiatic Society for December, 1847, to July, 1849, presented to it by the Society.

4th. From Capt. George M. Siddons, 1st Light Cavalry, forwarding a translation of the Vichitra Nataka, a text book of the Sikhs. Referred to the Oriental Section.

5th. From Dr. Seyffarth, Librarian of the German Oriental Society, (Deutsche Morgenlandische Gesellschaft) returning thanks for the following donations, viz. Dr. Hæberlin's Sanskrita Anthology, and Bibliotheca Indica Nos. 1 to 14.

6th. From C. Gubbins, Esq., Agra, communicating a Daily Register of Temperature kept during a part of 1850, at Meerut. Ordered to be published in the Journal.

7th. From Dr. A. Campbell, Darjeling, forwarding a paper on the storms of Tibet, in reply to the queries published in the 3rd number of the Journal.

Ordered—that the best thanks of the Society be conveyed to Dr. Campbell, and the paper be printed in the Journal.

8th. From C. Morehead, Esq., Superintendent, Grant Medical College, presenting copies of the Report of the College for 1845 to 1850.

9th. From Capt. A. Fytche, presenting a slab of stone with a Sanskrit (?) Inscription in the Gupta character, from Arracan.

Capt. Fytche being present at the meeting thanks of the Society for the donation were tendered him in person by the President.

10th. The Council submitted the following report on the Museum of Economic Geology.

Report on the Museum of Economic Geology.

Although this is not the kind of report which I could have desired to present to the Society, inasmuch as it does not give a just idea of what has been done, and omits wholly the important points of the nature of the work, and the hinderances the Museum labours under; being in fact but a brief extract from a much longer report; yet as the Council think it quite sufficient, I have the honour to submit it, in compliance with their wishes.

The question of the "Progress" of the Museum may be considered in so many lights that it must be replied to generally. Its progress then as regards additions to its collections though not equal to what has been obtained in former years is still good, when we consider that, depending upon voluntary contributions, it must always, and necessarily, be very slow in a country like India where so few persons, even if with the knowledge and opportunities required, can afford to collect for us. As regards its arrangements and registry it has been, as from the commencement, kept completely arranged and catalogued, and as regards the different researches carried on, the successful ones and those worth publishing will partly be found in the Society's Journal as it appears,* and in my report when published, and others will be brought forward as soon as complete, and if of sufficient importance to occupy space in the Journal.

The following is a list of Collections presented to the Museum of Economic Geology, July, 1849 to July, 1850.

Dr. Spilsbury.

Capt. Sherwill, Cape Specimens.

————— Burra Burra Mines.

————— Deoghur Copper.

————— Beerbhoom ditto.

————— Ditto Coal.

* We have but five numbers for 1849-50, July to July yet published.

Captain Wallage, Labuan Coal, &c.

Captain Brooke, Zinc from Rajpootana.

Messrs. Duncan and Sweetland, Rajmehal Geological Specimens.

Captain Campbell, Bundleeund, ditto ditto.

Mr. Theobald, Junr., Survey (Rocks) from the Burdwan district.

Drs. Campbell and Hooker from Bootan, Geological Specimens.

Mr. Homfray, Ball Coal.

Mr. Theobald, Junr. ditto.

Mr. Torrens, Iron from Beerbhoom.

Rev. Mr. Thomas from Ava, Bezuar Stone.

Lieut. Fell, I. N. from Diamond Island, Coal Lignite and Rocks.

List of Papers for the Journal published and unpublished.

On yellow earth from Sikkim.

— Calderite.

— Ball Coal.

— Ditto ditto.

— Haughtonite.

— Drs. Campbell and Hooker's specimens from Sikkim.

— Catalogue of presentations to the Museum from 1814 to 1850.

A Preliminary Report to government on the Deoghur Copper ores.

II. PIDDINGTON,

Curator, Museum, Economic Geology.

Ordered—that the report be received and laid on the table.

Mr. Piddington, by special permission from the Deputy Governor, as he said, read to the meeting a service letter in which he had communicated to the Government, the discovery of silver ores in the rubbish of the Deoghur copper mines. The ores are known to Peruvian miners under the name of *Pacozi*, and though they contain silver in such appreciable portions that it is only extractable to profit by the curious Spanish process of amalgamation as carried on in those countries, yet they form the staple of the richest Mexican mines from their vast abundance.

Specimens of the ore, and of those from Mexico and Peru, as well as of the silver extracted from Indian specimens were shewn, and Mr. P. added that though the season had prevented his obtaining from Captain Sherwill more than a small additional supply, he had been able to obtain a good average produce from mere surface specimens.

Dr. Roer, Secretary Oriental Section, submitted a letter on the part

of the Section, regarding the publication of translations in the *Bibliotheca Indica*.

The letter having been read, after some discussion, it was moved by Mr. Mitchell, seconded by Mr. Colvin, and resolved *nem. con.* that the letter be referred to the Council for consideration and report.

A report was read from the Council, submitting a Draft of a proposed Code of Bye-Laws for the Society: whereupon it was moved by the Hon'ble the President, seconded by Mr. J. R. Colvin and resolved—That the Draft of the proposed Code of Bye-Laws be printed and circulated among the Members, including those resident in the Mofussil, prior to its being finally considered at a Special General meeting to be held on Wednesday the 18th of December.

It was also resolved, proposed by Mr. Welby Jackson and seconded by the president, that Mofussil Members be required to vote *yes* or *no* to each rule. Further that should a Mofussil Member make any suggestion of amendment, the Secretary will bring it to the notice of the meeting, and, in the event of any Member present supporting the suggestion, it can be disposed of as any other motion; if not so supported, the suggestion will not be considered by the meeting.

Confirmed 4th December, 1850.

Signed J. COLVILLE, *President*.

FLETCHER HAYES, *Secretary*.

LIBRARY.

The following books have been added to the Library since the last meeting.

Presented.

Transactions of the Bombay Geographical Society; vol. IX. PRESENTED BY THE SOCIETY.

A Catalogue of the Library of the Hon'ble East India Company. London 1845.—BY THE HON'BLE EAST INDIA COMPANY.

Transactions of the Zoological Society of London. Vol. III. p. 5.—BY THE SOCIETY.

Journal of the Indian Archipelago, for October 1850.—BY THE EDITOR.

The Oriental Christian Spectator for Sept. 1850.—BY THE EDITOR.

The Calcutta Christian Observer for Nov. 1850.—BY THE EDITORS.

The Oriental Baptist, No. 47.—BY THE EDITOR.

The Upadeshaka, No. 47.—BY THE EDITOR.

La Patrie, No. 245 for 3rd Sept. 1850.—BY THE EDITOR.

Tattwabodhini Patrikâ, No. 87.—BY THE TATTWABODHINI' SABHA'.

Meteorological Register kept at the Surveyor General's Office, Calcutta, for the month of Sept., 1850.—BY THE DEPUTY SURVEYOR GENERAL.

Proceedings of the Zoological Society of London for 1849.—BY THE SOCIETY.

The Citizen, for Sept. and Oct. 1850.—BY THE EDITOR.

Exchanged.

Calcutta Review, No. 27.

Purchased.

Journal des Savants for July, 1850.

Comptes Rendus for July, 1850.

Annals and Magazine of Natural History for Aug. and Sept. 1850.

Cyclic Tables of Hindu and Mohammadan Chronology. By C. P. BROWN.

North British Review No. 26.

Edinburgh Review No. 185.

MUSEUM OF ANTIQUITIES.

From Capt. A. Fytche. A large stone with a Sanskrita (?) Inscription from Arracan.

FOR DECEMBER, 1850.

The usual monthly General Meeting was held on the evening of the 4th instant, at half-past 8. P. M.

HON'BLE SIR JAMES COLVILLE, KT. President, in the chair.

The proceedings of the last meeting having been read, a verbal alteration in the minutes was suggested and agreed to, and the proceedings were confirmed.

J. Reddie, Esq., duly proposed and seconded at the November meeting was balloted for, and elected an ordinary member.

Hon'ble J. C. Erskine, Resident at Nepal, was named as a candidate for election at the next meeting; proposed by B. H. Hodgson, Esq. and seconded by the President.

Read letters—

—From Baron Von Hammer Purgstall, presenting a copy of the "Vienna Review" and some of his academical speeches, for the Society's Library, and stating that he has not received the Journal for January and March 1849.

This communication gave rise to a protracted conversation as to the steps to be taken to accelerate the circulation of the Society's publications in Europe. It was ultimately proposed by Mr. R. Houston seconded by the President, and resolved—that Professor Wilson be requested to aid the Asiatic Society with his advice and co-operation in this matter. The best thanks of the Society were also voted to the Baron Von Hammer Purgstall, and the Nos. of the Journal wanted were ordered to be forwarded to him.

—From R. Clarke, Esq., Honorary Secretary to the Royal Asiatic Society, London, conveying the thanks of that Institution for the following donations to its Library, viz. "Bibliotheca Indica," Nos. 1—14, and Hæberlin's Anthology.

—From E. Clibborn, Esq., Acting Secretary to the Royal Irish Academy, tendering thanks for the donation of the Journal of the Asiatic Society Nos. 166 to 202, and enquiring if the earlier volumes of the work could not be procured for the Academy.

Ordered that the Secretary write to Mr. Clibborn for a memorandum of the volumes required.

—From N. Shaw, Esq., Secretary to the Royal Geographical Society of London, acknowledging receipt of the Journal, Nos. 204—5.

—From Mons. E. Mulsant, Secretary to the Société National d'Agriculture, Histoire Naturelle, et Arts Utiles de Lyon, presenting a copy of the XI. volume of the Society's Transactions.

—From the Editor of the *Hindu Intelligencer* newspaper, requesting that a copy of the Journal as it appears monthly, may be presented to him gratis, as at present furnished to the Editors of the daily papers in Calcutta.

Ordered—that the Society do not think it desirable to extend the privilege in question to the Editors of Weekly papers.

A paper was read from B. H. Hodgson, Esq., descriptive of the horns of a Tibetan Stag, supposed to be identical with *Cervus Affinis*, Hodg. Ordered for publication in the Journal.

Some questions being asked about the Draft Code of Rules to be discussed at the special general meeting on the 18th instant, the President explained that it is desirable to afford time to the members at distant stations to express their sentiments on the subject, and accordingly moved that the special general meeting for the consideration of the Draft Code of Rules be postponed to 15th January, 1851. Mr. H. Torrens seconded the motion, when it was put to the vote and carried nem. con.

A list of donations to the Library having been laid on the table the Meeting adjourned.

Confirmed 8th January, 1851.

J. COLVILE, *President*.

F. HAYES, *Secretary*.

LIBRARY.

The following books have been added to the library since the last meeting.

Presented.

Annales des Sciences Physiques et Naturelles, d'Agriculture et d'Industrie, publiées par la Société nationale d'Agriculture, etc. de Lyon. Tome XI.

—PRESENTED BY THE SOCIETY.

Rgya-char-rolpa, ou Developement des Jeux, contenant l'Histoire du Buddha Sakya Muni, Traduit sur la version Tibétaine par P. E. Faucaux. Paris, 1848, 4to.—BY THE TRANSLATOR.

Chrestomathie Hindie et Hindouie, Paris, 1850, 4to.—BY MONS. GARCIN DE TASSY.

Zakarija ben Mohammad ben Mahmud el Cazwini's Kosmographie. Erster Thiel. Die *كذاب عجيب المحلوقات* Wunder der Schopfung. Herausgegeben von F. Wustenfeld. Zweites Helft. Gottingen, 1849.—BY THE EDITOR.

Vergleichende Grammatik des Sanskrita, Zend, Griechischen, Lateinischen, Litthauischen, Altslawischen, Gothischen und Deutschen, von Franz Bopp. Funfte Abtheilung. Berlin, 1849.—BY THE AUTHOR.

Zeitschrift der Deutschen Morgenlandischen Gesellschaft, Vol. III. p. IV. and Vols. IV. p. I.-II.

Annual Report of the Grant Medical College, Bombay, for the years 1845 @ 50,—3 Nos.—BY THE COLLEGE.

Jaska's Nirukta summt den Nighantavas herausgegeben von Rudolph Roth. 2 parts, Gottingen, 1848, 8vo.—BY THE EDITOR.

Rapport Annual fait a la Société Asiatique dans la Seance Generale du 30 Juille, 1849. Par M. Jules Mohl.—BY THE AUTHOR.

Transactions of the Royal Society of Edinburgh, Vol. XVI. part V.—BY THE SOCIETY.

Proceedings of the Royal Society of Edinburgh, Nos. 33-4.—BY THE SAME.

Transactions of the Royal Irish Academy, Vol. XXII. parts I.-II.—BY THE ACADEMY.

Transactions of the Royal Society of London for the year 1849, p. II.—BY THE SOCIETY.

Discussion of Meteorological Observations taken in India at various heights, embracing those at Dodabetta on the Neelgherry Mountains at 8640 feet above the level of the sea, by Lieut.-Col. W. H. Sykes. (From the Philosophical Transactions, Part II. for 1850).—BY THE AUTHOR.

List of Fellows of the Royal Society of London, 1849.—BY THE ROYAL SOCIETY.

Address of the Right Honorable the Earl of Rosse, the President, read at the Anniversary Meeting of the Royal Society, on Friday, November 30th, 1849.—BY THE SAME.

Observations in Magnetism and Meteorology made at Markestoun in Scotland, in 1845-6. Edited by John Allan Bonn, Esq. Edinburgh, 1849, 4to.—BY THE ROYAL SOCIETY OF EDINBURGH.

Catalogue of 2156 Stars formed from the observations made during twelve years from 1836 to 1847, at the Royal Observatory, Greenwich. London, 1849, 4to.—BY THE ROYAL SOCIETY.

Bulletin de la Société de Géographie, Troisième Série, Tome XI. Paris, 1849.—BY THE SOCIETY.

Report of the British Association for the Advancement of Science, for 1849.—BY THE ASSOCIATION.

Journal of the Royal Asiatic Society, Vol. XII, Part II.—BY THE SOCIETY.

Proceedings of the Royal Irish Academy for the year 1847-8, Vol. IV. Parts I.-II.—BY THE ACADEMY.

Indische Studien, Zeitschrift für die Kunde des indischen Alterthums. Im Vereine mit mehreren Gelehrten herausgegeben von Dr. Albrecht Weber, Erster Heft. Berlin, 1849.—BY THE EDITOR.

A Catalogue of the Library of the East India College, 1843. Hertford, 1843, 8vo.—BY THE GOVERNMENT OF BENGAL.

A Geographical Description of the Panjab, in Panjabi. Translated from the Persian of Bûte Shâh, by Munshi-Bahlol. Lodiāna, 1850, 8vo.—BY SIR HENRY ELLIOT.

Journal of the Bombay Branch of the Royal Asiatic Society, No. XIII.—BY THE SOCIETY.

Journal of the Royal Geographical Society of London, Vol. XIX. Part II.—BY THE SOCIETY.

Jahrbucher der Literatur für 1848.—BY BARON VON HAMMER PURGSTALL.

Abhandlung über die Siegel der Aivalier Perser und Turken. Von Freiherrn Von Hammer Purgstall.—BY THE SAME.

Bericht über Herrn. Reinaud's französische Uebersetzung von Abulfeda's Geographie. Von Freiherrn Von Hammer Purgstall.—BY THE SAME.

Von der Inschriftverbränung der Kleider als Souverainitätsrecht der Frauen im Morgenlande. Von Freiherrn Von Hammer Purgstall.—BY THE SAME.

Ueber die Menschenclasse, welche von den Arabern "Schoubige" genannt wird. Von Freiherrn Von Hammer Purgstall.—BY THE SAME.

Bericht über Herrn Charrieres Negociations de la France dans le Levant.—BY THE SAME.

Bericht über die in den letzten vier Jahren 1845-6-7 und 48 zu Constantinopel gedruckten und lithographirten werke. Von Freiherrn Hammer Purgstall, (3 parts.)—BY THE SAME.

Proceedings of the Zoological Society of London for 1848.—BY THE SOCIETY.

Meteorological Register kept at the Surveyor General's office, Calcutta, for the month of October, 1850.—BY THE DEPUTY SURVEYOR GENERAL.

Quarterly Journal of the Geographical Society, Nos. 20, 21, 22.—BY THE SOCIETY.

Journal Asiatique, Nos. 65 and 72. BY THE ASIATIC SOCIETY OF PARIS.
Tattwabodhiní Patriká, No. 88.—BY THE TATTWABODHINI' SABHA'.

Journal of the Indian Archipelago, Vol. IV. Part X.—BY THE EDITOR.

Two copies of the same.—BY THE GOVERNMENT OF BENGAL.

Oriental Christian Spectator for Oct. 1850.—BY THE EDITOR.

Catalogue of Books for sale at the British Library.—BY MESSRS. R. C. LEPAGE AND CO.

Purchased.

Lexicon Bibliographicum et Encyclopædicum, a Mustafah ben Abdallah, Katib Jelebi dicto et nomine Hájí Khalfa celebrato compositum, Vol. V. Edited by Gustavas Fluegel. London, 1850—4to.

Exchanged.

Jameson's Journal, Nos. 94—7.

Philosophical Magazine, Nos. 235 @ 247.

Athenæum, Nos. 1191 @ 1193.

Kept at the Surveyor General's Office, Sacramento, for the Month of July, 1850.

| Observations made at sun-rise. | | | | | | | | | | Maximum Pressure observed at 9h. 50m. | | | | | Observations made at apparent noon. | | | | |
|--------------------------------|---------------|---------|----------|---------|-----------|-------------------|------------------------|--------------|----------|---------------------------------------|----------|----------------|------------------------|--------------|-------------------------------------|------|------------|----------------|--|
| Date. | Temperature. | | | | Wind. | Aspect of Sky. | Bar. F. red. to 32° F. | Temperature. | | | Wind. | Aspect of Sky. | Bar. F. red. to 32° F. | Temperature. | | | Wind. | Aspect of Sky. | |
| | Of Mer. | Of Air. | W. Bulb. | Of Mer. | | | | Of Air. | W. Bulb. | Of Mer. | | | | Of Air. | W. Bulb. | | | | |
| 1 | Inches 29.396 | 77.4 | 77.9 | 76.4 | S. S. W. | Drizzly | 29.458 | 83.2 | 82.8 | 78.7 | S. W. | Cloudy | 29.469 | 83.5 | 84.0 | 79.1 | S. sharp | Cloudy | |
| 2 | .613 | 81.4 | 82.8 | 80.3 | S. W. | Cirro-strati | .654 | 88.8 | 88.2 | 82.2 | S. sharp | Cumulo-strati | .949 | 89.6 | 89.8 | 82.9 | s. w. shp. | Cumulo-strati | |
| 3 | .659 | 81.9 | 82.2 | 79.8 | S. W. | Ditto | .689 | 89.3 | 89.2 | 83.7 | S. W. | Cirro-strati | .654 | 89.8 | 89.3 | 82.3 | S. W. | Ditto | |
| 4 | .589 | 81.9 | 82.2 | 71.0 | W. | Cloudy | .633 | 86.7 | 86.5 | 82.4 | S. W. | Ditto | .601 | 89.7 | 89.0 | 83.2 | S. S. W. | Cloudy | |
| 5 | .565 | 82.9 | 83.5 | 81.0 | S. S. W. | Ditto | .579 | 82.4 | 82.8 | 79.0 | S. | Cloudy | .569 | 87.8 | 87.2 | 82.2 | S. S. W. | Cloudy | |
| 6 | .513 | 82.2 | 83.0 | 81.0 | S. S. W. | Cirro-strati | .560 | 90.0 | 90.0 | 83.2 | S. S. W. | Cirro-strati | .549 | 94.0 | 93.4 | 85.2 | S. W. | Ditto | |
| 7 | .522 | 84.3 | 85.0 | 82.8 | S. S. W. | Cirro-strati | .520 | 92.3 | 91.3 | 84.9 | W. S. W. | Ditto | .580 | 96.2 | 95.2 | 84.5 | W. | Ditto | |
| 8 | .599 | 83.3 | 84.0 | 82.2 | S. | Scattered-clouds | .641 | 92.4 | 91.2 | 86.0 | S. W. | Ditto | .627 | 93.2 | 86.7 | 81.2 | N. E. | Cloudy | |
| 9 | .596 | 79.8 | 80.3 | 78.3 | S. | Cloudy | .626 | 90.5 | 89.3 | 84.0 | S. W. | Cumuli | .591 | 94.8 | 93.7 | 86.2 | S. W. | Cumuli | |
| 10 | .597 | 83.3 | 84.0 | 82.0 | S. S. W. | Scattered-clouds. | .624 | 89.0 | 88.4 | 83.4 | S. S. W. | Cirro-strati | .595 | 91.2 | 90.1 | 83.2 | W. S. | Cirro-strati | |
| 11 | .. | 83.2 | 83.7 | 81.3 | .. | .. | .. | .. | 89.2 | 82.3 | .. | .. | .614 | 92.8 | 91.8 | 82.6 | S. | Cumulo-strati | |
| 12 | .611 | 83.2 | 83.7 | 81.0 | S. S. W. | Cirro-strati | .621 | 89.0 | 88.5 | 82.3 | S. S. W. | Ditto | .559 | 92.6 | 91.3 | 82.6 | S. W. | Ditto | |
| 13 | .538 | 82.5 | 83.3 | 81.3 | S. S. W. | Ditto | .552 | 92.3 | 91.3 | 84.3 | S. | Cirro-strati | .525 | 94.8 | 93.3 | 86.0 | S. W. | Cumuli | |
| 14 | .565 | 78.3 | 78.8 | 77.8 | S. E. | Cloudy | .583 | 88.4 | 86.8 | 82.2 | W. | Cumulo-strati | .557 | 90.5 | 89.0 | 82.4 | S. S. E. | Cumulo-strati | |
| 15 | .565 | 81.0 | 81.8 | 80.2 | S. E. | Ditto | .597 | 91.9 | 89.0 | 82.9 | E. N. E. | Ditto | .562 | 93.4 | 89.8 | 82.4 | S. S. E. | Cloudy | |
| 16 | .560 | 81.0 | 81.7 | 79.8 | E. S. E. | Scattered-clouds. | .617 | 88.2 | 85.3 | 81.7 | E. S. E. | Nimbi | .615 | 83.1 | 80.8 | 78.4 | S. E. | Raining | |
| 17 | .582 | 81.0 | 80.5 | 79.0 | E. S. E. | Cirro-strati | .655 | 86.8 | 85.3 | 81.8 | S. E. | Cumulo-strati | .621 | 88.9 | 87.0 | 81.3 | S. | Nimbi | |
| 18 | .620 | 80.0 | 80.5 | 79.4 | .. | .. | .. | .. | 85.3 | 81.8 | .. | .. | .. | .. | .. | .. | .. | .. | |
| 19 | .. | 80.8 | 81.0 | 79.4 | S. | Cirro-strati | .614 | 90.2 | 89.4 | 82.3 | .. | Cumuli | .589 | 92.9 | 92.2 | 83.8 | s. W. | Cumulo-strati | |
| 20 | .598 | 81.5 | 82.0 | 80.3 | S. | Ditto | .571 | 88.7 | 88.2 | 83.0 | S. S. W. | Cirro-strati | .546 | 91.2 | 90.5 | 83.5 | S. S. E. | Ditto | |
| 21 | .526 | 82.3 | 83.0 | 81.3 | S. | Cloudy | .575 | 91.8 | 90.7 | 84.7 | E. S. E. | Cumulo-strati | .485 | 93.0 | 91.8 | 84.9 | E. S. E. | Ditto | |
| 22 | .494 | 82.3 | 83.0 | 81.3 | E. N. E. | Ditto | .469 | 87.0 | 86.2 | 81.2 | E. N. E. | Cloudy | .448 | 88.6 | 85.0 | 82.0 | E. S. E. | Nimbi | |
| 23 | .471 | 80.9 | 81.3 | 79.6 | E. N. E. | Ditto | .457 | 86.2 | 84.9 | 80.2 | E. N. E. | Ditto | .422 | 88.9 | 88.0 | 81.8 | E. | Cloudy | |
| 24 | .435 | 80.2 | 80.8 | 78.3 | E. sharp. | Ditto | .477 | 79.4 | 80.0 | 79.0 | N. N. W. | Raining | .515 | 80.8 | 80.5 | 78.8 | S. | Raining | |
| 25 | .467 | 79.3 | 79.6 | 78.3 | S. E. | Raining | .599 | 82.2 | 81.3 | 79.2 | E. | Cloudy | .552 | 85.3 | 83.6 | 80.2 | S. E. | Cloudy | |
| 26 | .535 | 78.7 | 78.8 | 78.0 | N. E. | Ditto | .575 | 84.4 | 83.6 | 79.5 | E. N. E. | Cumulo-strati | .523 | 89.2 | 87.6 | 81.8 | E. N. E. | Cumulo-strati | |
| 27 | .520 | 77.5 | 78.0 | 77.0 | E. | Cloudy | .575 | 80.2 | 80.7 | 79.4 | N. N. E. | Raining | .501 | 85.7 | 84.0 | 81.3 | N. N. E. | Cloudy | |
| 28 | .507 | 77.7 | 78.2 | 77.3 | N. E. | Raining | .531 | 88.2 | 87.2 | 83.0 | N. N. E. | Cumulo-strati | .600 | 91.2 | 90.5 | 83.9 | S. | Cumulo-strati | |
| 29 | .601 | 80.6 | 81.2 | 80.2 | S. S. E. | Cloudy | .613 | 88.2 | 87.2 | 83.8 | S. S. E. | Ditto | .559 | 93.7 | 91.7 | 83.8 | S. E. | Ditto | |
| 30 | .578 | 82.0 | 82.8 | 81.6 | S. E. | Cumulo-strati | .589 | 91.5 | 88.8 | 84.0 | N. E. | Ditto | .543 | 93.2 | 91.7 | 84.3 | N. E. | Ditto | |
| 31 | .566 | 82.4 | 83.0 | 81.8 | S. E. | Cirro-strati | .583 | 90.3 | 89.2 | 84.0 | N. E. | .. | .. | .. | .. | .. | .. | .. | |
| Mean. | 29.550 | 81.1 | 81.6 | 79.9 | .. | .. | 29.581 | 88.0 | 87.1 | 82.2 | .. | .. | 29.559 | 90.3 | 88.9 | 82.6 | .. | .. | |

[Meteorological Register, continued.]

| Observations made at 2h. 40m | | | | | | | | | | Minimum Pressure observed at 4 p. m. | | | | | | | | | | Observations made at sun-set. | | | | | | | | | |
|------------------------------|---------|---------|----------|---------|----------------|--------------|----------|---------|---------|--------------------------------------|--------------|--------------|---------|----------|---------|----------|-----------------|----------------|---------|-------------------------------|----------|----------|-----------------|--|--|--|--|--|--|
| Temperature | | | | | Aspect of Sky. | Temperature. | | | | | Wind. | Temperature. | | | | | Wind. | Aspect of Sky. | | | | | | | | | | | |
| Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Of Mer. | | Of Air. | W. Bulb. | Of Mer. | Of Air. | W. Bulb. | | Of Mer. | Of Air. | W. Bulb. | Of Mer. | Of Air. | | W. Bulb. | Of Mer. | Of Air. | W. Bulb. | | | | | | | | |
| Inches | ° | ° | ° | ° | | Inches | ° | ° | ° | ° | | Inches | ° | ° | ° | ° | | Inches | ° | ° | ° | ° | | | | | | | |
| 29.475 | 80.0 | 81.3 | 78.8 | s-w.sp. | Cloudy | 29.465 | 84.4 | 84.9 | 79.3 | s-w.sp. | Cloudy | 29.507 | 83.4 | 84.3 | 78.9 | SW sp. | Scatd. clouds | 29.507 | 83.4 | 84.3 | 78.9 | SW sp. | Scatd. clouds | | | | | | |
| .614 | 91.2 | 90.2 | 81.6 | W.sp. | Cumulo-strati | .594 | 90.1 | 89.2 | 82.9 | s-w.sp. | Cirro-strati | .635 | 85.4 | 85.8 | 81.3 | SW sp. | Cloudy to the W | .635 | 85.4 | 85.8 | 81.3 | SW sp. | Cloudy to the W | | | | | | |
| .600 | 90.6 | 90.2 | 81.4 | S. W. | Cirro-strati | .566 | 90.3 | 89.5 | 83.7 | Ditto | Ditto | .588 | 86.6 | 87.0 | 82.9 | S. W. | Cirro-strati | .588 | 86.6 | 87.0 | 82.9 | S. W. | Cirro-strati | | | | | | |
| .552 | 90.3 | 89.4 | 83.2 | S. W. | Ditto | .519 | 88.3 | 88.0 | 82.6 | S. W. Cloudy | Ditto | .534 | 87.7 | 87.0 | 82.2 | S. W. | Zenth-clear | .534 | 87.7 | 87.0 | 82.2 | S. W. | Zenth-clear | | | | | | |
| .539 | 88.3 | 87.8 | 82.8 | S. W. | Cloudy | .520 | 87.7 | 87.3 | 82.6 | S. W. Cloudy | Ditto | .528 | 85.4 | 86.0 | 82.6 | S. W. | Cloudy | .528 | 85.4 | 86.0 | 82.6 | S. W. | Cloudy | | | | | | |
| .483 | 95.7 | 94.3 | 84.6 | S. W. | Cirro-strati | .501 | 94.3 | 93.3 | 84.5 | S. W. Cirro-strati | Ditto | .496 | 90.0 | 89.7 | 84.9 | S. W. | Cirro-strati | .496 | 90.0 | 89.7 | 84.9 | S. W. | Cirro-strati | | | | | | |
| .550 | 96.4 | 94.3 | 85.8 | S. W. | Ditto | .601 | 94.5 | 94.0 | 86.0 | S. W. Cirro-strati | Ditto | .541 | 90.8 | 89.7 | 82.8 | S. E. | Ditto | .541 | 90.8 | 89.7 | 82.8 | S. E. | Ditto | | | | | | |
| .635 | 82.0 | 82.0 | 78.1 | S. E. | Cloudy | .601 | 79.0 | 78.7 | 76.0 | S. W. Cirro-strati | Ditto | .578 | 79.4 | 79.8 | 75.9 | S. E. | Cloudy | .578 | 79.4 | 79.8 | 75.9 | S. E. | Cloudy | | | | | | |
| .565 | 95.7 | 94.3 | 85.0 | S. W. | Cumuli | .512 | 94.0 | 92.5 | 86.3 | S. W. Cirro-strati | Ditto | .563 | 87.3 | 86.8 | 80.2 | S. W. | Cumuli | .563 | 87.3 | 86.8 | 80.2 | S. W. | Cumuli | | | | | | |
| .565 | 83.3 | 91.9 | 85.2 | S. | Cirro-strati | .529 | 92.3 | 91.2 | 83.8 | S. Cirro-cumuli | Ditto | .535 | 83.9 | 83.4 | 81.3 | SS. W. | Cirro-strati | .535 | 83.9 | 83.4 | 81.3 | SS. W. | Cirro-strati | | | | | | |
| .558 | 94.0 | 92.2 | 83.3 | S. W. | Cumuli | .525 | 93.0 | 92.0 | 82.7 | S. W. Cirro-strati | Ditto | .538 | 87.3 | 86.9 | 80.9 | S. W. | Cumuli | .538 | 87.3 | 86.9 | 80.9 | S. W. | Cumuli | | | | | | |
| .510 | 94.0 | 92.9 | 84.5 | S. W. | Cumulo-strati | .485 | 92.7 | 91.3 | 83.7 | S. W. Cirro-strati | Ditto | .433 | 88.2 | 88.0 | 82.8 | S. W. | Cumulo-strati | .433 | 88.2 | 88.0 | 82.8 | S. W. | Cumulo-strati | | | | | | |
| .510 | 94.3 | 89.3 | 83.3 | N. | Cloudy | .536 | 79.5 | 78.6 | 77.0 | N. W. Cirro-strati | Ditto | .551 | 78.0 | 77.9 | 76.3 | S. E. | Raining | .551 | 78.0 | 77.9 | 76.3 | S. E. | Raining | | | | | | |
| .499 | 93.9 | 92.2 | 83.7 | S. W. | Cumulo-strati | .486 | 90.6 | 89.6 | 83.2 | S. W. Cirro-strati | Ditto | .489 | 82.0 | 82.0 | 79.6 | S. E. | Cloudy | .489 | 82.0 | 82.0 | 79.6 | S. E. | Cloudy | | | | | | |
| .521 | 91.6 | 89.5 | 81.2 | S. E. | Ditto | .499 | 90.6 | 88.2 | 81.4 | S. W. Cirro-strati | Ditto | .529 | 86.2 | 86.0 | 79.8 | S. E. | Scatd. clouds | .529 | 86.2 | 86.0 | 79.8 | S. E. | Scatd. clouds | | | | | | |
| .565 | 85.4 | 80.8 | 73.3 | S. E. | Raining | .544 | 86.7 | 86.7 | 81.9 | S. E. Cumulo-strati | Ditto | .565 | 85.0 | 84.2 | 79.7 | S. E. | Cumulo-strati | .565 | 85.0 | 84.2 | 79.7 | S. E. | Cumulo-strati | | | | | | |
| .567 | 90.5 | 88.8 | 82.3 | S. E. | Numb | .558 | 87.5 | 87.5 | 83.2 | S. Cirro-strati | Ditto | .587 | 85.4 | 85.0 | 79.6 | S. | Cumulo-strati | .587 | 85.4 | 85.0 | 79.6 | S. | Cumulo-strati | | | | | | |
| .522 | 85.2 | 82.3 | 79.8 | N. | Rain & thunder | .508 | 80.0 | 82.0 | 80.0 | S. E. Cirro-strati | Ditto | .535 | 79.2 | 79.7 | 77.9 | N. W. | Raining | .535 | 79.2 | 79.7 | 77.9 | N. W. | Raining | | | | | | |
| .481 | 92.8 | 92.2 | 84.5 | S. E. | Cumulo-strati | .472 | 90.6 | 89.8 | 81.9 | S. W. Cirro-strati | Ditto | .483 | 87.9 | 87.4 | 83.0 | S. W. | Cloudy | .483 | 87.9 | 87.4 | 83.0 | S. W. | Cloudy | | | | | | |
| .423 | 96.2 | 91.8 | 83.3 | S. E. | Ditto | .403 | 93.3 | 86.5 | 82.4 | S. E. Cirro-strati | Ditto | .339 | 94.3 | 94.3 | 82.0 | S. W. | Scatd. clouds | .339 | 94.3 | 94.3 | 82.0 | S. W. | Scatd. clouds | | | | | | |
| .408 | 86.3 | 81.8 | 79.6 | S. E. | Rain & thunder | .381 | 83.3 | 82.2 | 80.4 | S. E. Cirro-strati | Ditto | .336 | 82.9 | 83.2 | 80.3 | S. W. | Cloudy | .336 | 82.9 | 83.2 | 80.3 | S. W. | Cloudy | | | | | | |
| .375 | 89.3 | 86.8 | 80.9 | S. E. | Cumulo-strati | .356 | 88.2 | 84.9 | 81.9 | S. E. Cumulo-strati | Ditto | .398 | 83.0 | 81.8 | 80.0 | S. E. | Raining | .398 | 83.0 | 81.8 | 80.0 | S. E. | Raining | | | | | | |
| .494 | 82.2 | 81.1 | 79.3 | S. E. | Cloudy | .479 | 84.2 | 80.9 | 78.9 | S. E. Cirro-strati | Ditto | .515 | 80.0 | 80.2 | 78.4 | S. E. | Cloudy | .515 | 80.0 | 80.2 | 78.4 | S. E. | Cloudy | | | | | | |
| .516 | 84.0 | 83.0 | 80.7 | S. E. | Drizzly | .490 | 83.2 | 83.2 | 81.0 | S. E. Cirro-strati | Ditto | .517 | 84.0 | 84.2 | 81.2 | S. E. | Cloudy | .517 | 84.0 | 84.2 | 81.2 | S. E. | Cloudy | | | | | | |
| .482 | 86.2 | 84.7 | 80.6 | N. E. | Cumulo-strati | .459 | 85.2 | 83.8 | 80.2 | S. E. Cirro-strati | Ditto | .489 | 83.4 | 83.7 | 79.2 | S. E. | Scatd. clouds | .489 | 83.4 | 83.7 | 79.2 | S. E. | Scatd. clouds | | | | | | |
| .478 | 87.7 | 86.0 | 81.9 | N. E. | Ditto | .474 | 88.0 | 85.9 | 81.2 | S. E. Cirro-strati | Ditto | .511 | 83.8 | 83.6 | 80.3 | S. E. | Cloudy | .511 | 83.8 | 83.6 | 80.3 | S. E. | Cloudy | | | | | | |
| .542 | 93.2 | 92.7 | 84.2 | S. E. | Ditto | .503 | 93.0 | 90.3 | 82.7 | S. E. Cirro-strati | Ditto | .533 | 87.2 | 87.2 | 83.0 | S. E. | Scatd. clouds | .533 | 87.2 | 87.2 | 83.0 | S. E. | Scatd. clouds | | | | | | |
| .489 | 93.0 | 91.9 | 83.0 | S. E. | Ditto | .489 | 93.0 | 91.4 | 83.0 | S. E. Cirro-strati | Ditto | .513 | 88.0 | 87.6 | 84.3 | S. E. | Cloudy | .513 | 88.0 | 87.6 | 84.3 | S. E. | Cloudy | | | | | | |
| .492 | 95.4 | 94.5 | 84.0 | S. E. | Ditto | .474 | 95.5 | 93.5 | 83.2 | S. E. Cumuli | Ditto | .471 | 91.0 | 89.0 | 84.0 | N. N. W. | Cumuli | .471 | 91.0 | 89.0 | 84.0 | N. N. W. | Cumuli | | | | | | |
| 29.519 | 90.4 | 88.8 | 82.3 | ... | ... | 29.493 | 88.7 | 87.5 | 82.0 | ... | ... | 29.519 | 85.2 | 85.1 | 80.9 | ... | ... | 29.519 | 85.2 | 85.1 | 80.9 | ... | ... | | | | | | |
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Meteorological Register kept at the Surveyor General's Office, Calcutta, for the Month of August, 1850.

| Date. | Observations made at sun-rise. | | | | | Maximum Pressure observed at 9h. 50m. | | | | | Observations made at apparent noon. | | | | |
|-------|--------------------------------|---------|---------|----------|-----------------------|---------------------------------------|---------|---------|----------|----------------------|-------------------------------------|---------|---------|----------|-------------------------|
| | Temperature. | | Wind. | | Aspect of Sky. | Temperature. | | Wind. | | Aspect of Sky. | Temperature. | | Wind. | | Aspect of Sky. |
| | Bar. F. to | Of Mer. | Of Air. | W. Bulb. | | Bar. F. to | Of Mer. | Of Air. | W. Bulb. | | Bar. F. to | Of Mer. | Of Air. | W. Bulb. | |
| 1 | Inches 29.513 | 83.4 | 84.0 | 82.0 | W. Cirro-strati | Inches 29.564 | 89.8 | 88.5 | 83.4 | Cloudy | Inches 29.545 | 91.8 | 90.4 | 83.7 | Cloudy |
| 2 | .475 | 80.7 | 81.5 | 79.3 | W.N.W. Cloudy | .515 | 83.3 | 83.3 | 81.3 | W. Ditto | .482 | 87.2 | 85.2 | 81.3 | Ditto |
| 3 | .463 | 79.6 | 80.3 | 79.3 | S.S.W. Ditto | .516 | 82.0 | 83.2 | 80.8 | N.E. Ditto | .514 | 86.2 | 86.0 | 82.2 | S.S.E. Cumulo-strati |
| 4S | .557 | 80.0 | 80.4 | 78.8 | S.E. Cirro-strati | .619 | 82.0 | 86.4 | 82.3 | S.S.E. Cumulo-strati | .564 | 90.5 | 88.0 | 81.7 | S.S.E. Cumulo-strati |
| 5 | .522 | 82.0 | 82.8 | 81.3 | S.S.W. Cloudy | .548 | 88.0 | 87.5 | 81.8 | W. Ditto | .510 | 91.6 | 90.0 | 81.8 | W.N.W. Ditto |
| 6 | .468 | 82.0 | 82.8 | 81.6 | N.N.E. Ditto | .497 | 88.5 | 88.0 | 83.0 | N.N.E. Cirro-strati | .486 | 90.2 | 89.2 | 82.3 | N.N.W. Nimbi |
| 7 | .430 | 79.2 | 80.0 | 79.2 | S.W. Raining | .477 | 79.2 | 80.0 | 78.5 | s.w. ship. Raining | .477 | 80.0 | 80.2 | 78.2 | s.w. ship. Cirro-cumuli |
| 8 | .553 | 80.0 | 80.7 | 77.0 | S.W. Cloudy | .614 | 85.2 | 85.0 | 79.8 | S. W. ship. Cloudy | .599 | 85.2 | 85.2 | 80.0 | s.w. ship. Cirro-cumuli |
| 9 | .. | .. | .. | .. | ..... | .662 | 87.2 | 87.0 | 82.6 | S. W. Cirro-strati | .641 | 90.2 | 89.8 | 83.9 | S. Cumuli |
| 10 | .. | .. | .. | .. | ..... | .. | .. | .. | .. | ..... | .. | .. | .. | .. | ..... |
| 11S | .672 | 81.2 | 82.0 | 80.0 | S.W. Cloudy | .728 | 84.0 | 83.8 | 80.3 | S. W. Cloudy | .701 | 87.4 | 87.3 | 81.8 | S. W. Cumulo-strati |
| 12 | .706 | 81.0 | 81.8 | 80.3 | S.S.W. Ditto | .737 | 84.2 | 84.0 | 80.2 | S. S. W. Ditto | .715 | 88.0 | 87.6 | 81.9 | S. W. Cirro-cumuli |
| 13 | .676 | 81.2 | 82.0 | 80.0 | S. W. Ditto | .712 | 86.0 | 85.5 | 80.3 | S. S. W. Ditto | .700 | 88.2 | 87.8 | 80.2 | S. W. Ditto |
| 14 | .649 | 81.8 | 82.6 | 80.6 | S. W. Cirro-strati | .706 | 88.6 | 88.4 | 82.0 | S. W. Cirro-strati | .679 | 90.9 | 90.2 | 82.1 | S. W. Cumuli |
| 15 | .680 | 82.3 | 83.0 | 80.7 | S. W. Cloudy | .713 | 87.0 | 87.3 | 82.8 | S. W. Ditto | .689 | 90.2 | 89.3 | 83.0 | S. S. W. Cloudy |
| 16 | .645 | 81.8 | 82.6 | 81.1 | S.S.W. Cirro-cumuli | .699 | 88.0 | 87.3 | 82.8 | S. W. Cumulo-strati | .732 | 89.9 | 89.2 | 81.3 | S. S. W. Cumulo-strati |
| 17 | .719 | 78.0 | 78.6 | 77.3 | S.E. Cloudy | .761 | 86.1 | 84.6 | 80.0 | S. E. Cirro-cumuli | .800 | 88.0 | 86.4 | 81.2 | S. E. Ditto |
| 18S | .779 | 78.5 | 79.0 | 77.7 | E. S. E. Cirro-strati | .832 | 87.6 | 86.0 | 81.0 | E. Cumulo-strati | .868 | 84.6 | 80.2 | 78.6 | S. Raining |
| 19 | .842 | 78.0 | 78.0 | 77.2 | E. Clear | .886 | 83.0 | 80.0 | 77.5 | S. W. Raining | .822 | 89.4 | 88.8 | 81.2 | S. W. Cumulo-strati |
| 20 | .824 | 78.8 | 79.0 | 78.2 | S. Clear | .858 | 87.3 | 86.7 | 81.0 | S. W. Cumulo-strati | .798 | 87.5 | 87.0 | 81.8 | S. W. Ditto |
| 21 | .777 | 80.0 | 80.7 | 79.0 | S.S.W. Cirro-cumuli | .835 | 85.1 | 84.2 | 80.2 | S. W. Ditto | .736 | 90.3 | 90.0 | 82.5 | S. W. Ditto |
| 22 | .736 | 81.8 | 82.2 | 79.8 | S. W. Cumuli | .780 | 88.0 | 87.2 | 80.8 | S. W. Cumuli | .721 | 86.0 | 86.2 | 82.6 | W.S.W. Cloudy |
| 23 | .708 | 82.3 | 83.0 | 81.0 | S. W. Cloudy | .754 | 85.0 | 85.2 | 81.8 | S. W. Cloudy | .696 | 90.0 | 89.2 | 83.0 | S. S. E. Cumulo-strati |
| 24 | .710 | 77.7 | 78.2 | 77.2 | S. E. Ditto | .727 | 88.4 | 86.3 | 81.6 | S. S. W. Ditto | .686 | 91.3 | 90.3 | 81.8 | S. W. Ditto |
| 25S | .686 | 80.8 | 80.7 | 79.3 | S. Cirro-strati | .719 | 88.9 | 86.7 | 81.2 | S. W. Ditto | .686 | 90.0 | 89.2 | 83.0 | S. W. Ditto |
| 26 | .703 | 81.2 | 82.0 | 80.4 | S. Cloudy | .750 | 86.7 | 86.2 | 81.3 | S. W. Ditto | .715 | 90.3 | 89.2 | 80.0 | S. S. E. Ditto |
| 27 | .782 | 79.0 | 78.8 | 78.6 | S. E. Ditto | .811 | 84.6 | 84.7 | 80.3 | S. W. Ditto | .785 | 86.8 | 85.6 | 82.1 | S. S. W. Ditto |
| 28 | .745 | 79.9 | 80.4 | 79.2 | S. E. Cirro-strati | .780 | 88.0 | 87.3 | 81.6 | S. W. Ditto | .744 | 90.2 | 89.4 | 82.7 | S. S. W. Ditto |
| 29 | .701 | 81.3 | 81.8 | 80.3 | S. Cirro-strati | .726 | 87.9 | 87.3 | 82.2 | S. W. Ditto | .686 | .. | .. | .. | ..... |
| 30 | .. | .. | .. | .. | ..... | .. | .. | .. | .. | ..... | .. | .. | .. | .. | ..... |
| 31 | .. | .. | .. | .. | ..... | .. | .. | .. | .. | ..... | .. | .. | .. | .. | ..... |
| Mean | 29.656 | 80.5 | 81.1 | 79.5 | ..... | 29.697 | 86.3 | 85.7 | 81.2 | ..... | 29.671 | 88.7 | 87.7 | 81.7 | ..... |

[*Meteorological Register, continued.*]

| Observations made at 2h. 40m. | | | | | | | | | | Minimum Pressure observed at 4 p. m. | | | | | | | | | | Observations made at sun-set. | | | | | | | | | | Maximum and Minimum Thermometer. | | | | Rain Gauges. | | Moon's Phases. | |
|-------------------------------|------|--------------|------|--------|---------------|----------------|------|---------------------|------|--------------------------------------|---------------|--------|------|----------------|------|---------------------|---------------|--------------|------|-------------------------------|-------|----------------|----|------|----|-------|----|------|----|----------------------------------|----|--------|----|--------------|----|----------------|--|
| Bar. red. to 32° F. | | Temperature. | | Wind. | | Aspect of Sky. | | Bar. red. to 32° F. | | Temperature. | | Wind. | | Aspect of Sky. | | Bar. red. to 32° F. | | Temperature. | | Wind. | | Aspect of Sky. | | Max. | | Mean. | | Min. | | Upper. | | Lower. | | Inch. | | | |
| 29.487 | 90.7 | 89.6 | 84.0 | N. | Cloudy | 29.443 | 91.2 | 90.2 | 84.0 | N. | Cloudy | 92.466 | 86.8 | 88.2 | 84.2 | S.W. | Cloudy | 91.9 | 88.1 | 84.2 | 100.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 1 | | | | |
| 398 | 90.5 | 90.0 | 84.0 | W. | Cumulo-strati | 377 | 90.2 | 89.4 | 83.3 | W. | Nimbi | 414 | 83.2 | 83.0 | 80.0 | WSW | Raining | 92.0 | 86.5 | 81.0 | 109.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2 | | | |
| 464 | 86.2 | 86.2 | 82.4 | S. | Cloudy | 449 | 86.4 | 85.7 | 81.3 | S.E. | Cloudy | 508 | 86.0 | 84.3 | 80.3 | S.E. | Cirro-strati | 88.3 | 84.2 | 80.0 | 100.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3 | | | |
| 509 | 89.9 | 87.9 | 82.2 | S. E. | Ditto | 490 | 90.4 | 88.0 | 82.4 | S. E. | Ditto | 508 | 86.0 | 85.4 | 82.4 | S. E. | Ditto | 91.0 | 86.3 | 80.7 | 106.3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 4 | | | |
| 453 | 84.0 | 83.8 | 81.2 | N. | Raining | 453 | 84.0 | 83.8 | 81.2 | N. | Raining | 453 | 84.0 | 83.8 | 81.2 | N. | Raining | 91.2 | 86.5 | 81.7 | 108.5 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 5 | | |
| 450 | 88.0 | 86.3 | 81.8 | WSW | Raining | 386 | 90.0 | 89.6 | 83.7 | N. W. | Cumulo-strati | 412 | 82.8 | 80.2 | 78.0 | N. W. | Ditto | 91.2 | 86.5 | 81.7 | 104.4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 6 | | |
| 415 | 87.0 | 85.9 | 82.3 | NNW | Nimbi | 446 | 80.5 | 81.0 | 78.2 | S. W. | Cloudy | 478 | 79.7 | 80.0 | 78.0 | S. W. | Raining | 88.7 | 84.4 | 80.2 | 98.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 7 | | |
| 415 | 80.4 | 80.7 | 78.8 | WSW | Drizzly | 543 | 87.3 | 87.2 | 81.5 | S. W. | Cumulo-strati | 551 | 84.2 | 84.4 | 80.2 | S. W. | Cirro-strati | 91.8 | 87.5 | 83.0 | 100.5 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 8 | | |
| 556 | 87.2 | 86.2 | 80.3 | S.W. | Cumulo-strati | 573 | 89.2 | 88.4 | 83.4 | S.S.W. | Cloudy | 591 | 82.0 | 82.3 | 80.2 | S. | Raining | 91.8 | 86.1 | 80.3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 9 | | |
| 586 | 91.0 | 89.6 | 84.2 | S.S.W. | Ditto | 652 | 85.5 | 85.7 | 82.2 | S.S.W. | Cloudy | 684 | 79.3 | 79.8 | 78.2 | S.S.W. | Raining | 89.5 | 85.9 | 82.2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 10 | | |
| 645 | 85.6 | 84.8 | 81.8 | S.S.W. | Raining | 652 | 85.5 | 85.7 | 82.2 | S.S.W. | Cloudy | 684 | 79.3 | 79.8 | 78.2 | S.S.W. | Raining | 91.2 | 84.8 | 78.3 | 103.8 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 11 | | |
| 658 | 90.3 | 89.6 | 83.0 | S.S.W. | Cumulo-strati | 630 | 89.7 | 88.0 | 82.2 | S.S.W. | Cirro-cumuli | 646 | 85.0 | 85.2 | 81.2 | WSW | Ditto | 92.6 | 86.8 | 81.5 | 103.8 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 12 | | |
| 618 | 90.8 | 89.8 | 81.0 | S. W. | Cirro-cumuli | 593 | 91.8 | 88.7 | 81.3 | WSW | Cirro-strati | 587 | 86.2 | 86.0 | 81.6 | S.S.W. | Cirro-strati | 93.0 | 88.1 | 82.6 | 105.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 13 | | |
| 620 | 92.4 | 91.8 | 82.7 | S. W. | Cirro-strati | 593 | 91.8 | 88.7 | 81.3 | S. W. | Cumuli | 629 | 82.2 | 81.9 | 78.3 | S.S.W. | Scatd. clouds | 91.3 | 86.7 | 82.0 | 97.7 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 14 | | |
| 603 | 90.0 | 89.2 | 83.2 | S.W. | Cloudy | 607 | 89.2 | 88.3 | 82.7 | S. W. | Nimbi | 629 | 81.4 | 81.7 | 78.2 | S.S.W. | Drizzly | 91.0 | 86.5 | 81.9 | 98.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 15 | | |
| 614 | 90.0 | 89.2 | 82.7 | S.W. | Ditto | 616 | 83.8 | 82.0 | 78.5 | E. | Raining | 647 | 76.8 | 77.0 | 75.7 | S. E. | Raining | 91.0 | 86.5 | 81.9 | 98.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 16 | | |
| 680 | 87.8 | 84.0 | 80.0 | S. E. | Nimbi | 676 | 83.0 | 82.2 | 79.2 | S. W. | Cloudy | 705 | 81.0 | 80.7 | 78.0 | S. W. | Cirro-strati | 90.0 | 83.5 | 77.0 | 104.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 17 | | |
| 733 | 88.5 | 88.0 | 82.0 | E. | Nimbi | 718 | 86.4 | 85.3 | 81.0 | S. E. | Cumulo-strati | 754 | 82.2 | 82.7 | 78.3 | S. E. | Ditto | 89.2 | 84.0 | 78.3 | 98.6 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 18 | | |
| 801 | 86.2 | 85.0 | 79.2 | S. | Cirro-strati | 775 | 83.5 | 81.3 | 78.3 | S. W. | Cloudy | 794 | 83.2 | 82.8 | 78.8 | S. W. | Ditto | 88.0 | 83.2 | 78.3 | 98.6 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 19 | | |
| 756 | 87.2 | 86.2 | 79.0 | S. W. | Cloudy | 742 | 85.0 | 83.2 | 79.3 | S. W. | Ditto | 752 | 82.0 | 82.3 | 80.4 | S. W. | Ditto | 90.8 | 84.9 | 79.0 | 104.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 20 | | |
| 714 | 90.3 | 89.6 | 82.4 | S. W. | Cumulo-strati | 688 | 90.0 | 88.9 | 82.1 | S.S.W. | Cumulo-strati | 705 | 86.2 | 86.0 | 81.0 | S. W. | Ditto | 91.3 | 86.2 | 81.0 | 106.7 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 21 | | |
| 677 | 92.8 | 92.0 | 82.9 | S. W. | Ditto | 659 | 92.2 | 91.2 | 84.4 | S. W. | Ditto | 691 | 86.7 | 86.8 | 82.0 | S.W. sp | Cloudy | 93.7 | 88.0 | 82.3 | 109.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 22 | | |
| 674 | 85.7 | 85.6 | 82.5 | S. W. | Cloudy | 652 | 82.0 | 80.2 | 78.2 | S. E. | Cloudy | 623 | 84.5 | 84.7 | 81.0 | S. S. W. | Ditto | 97.0 | 83.8 | 80.5 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 23 | | | |
| 653 | 84.8 | 85.3 | 81.0 | S.W. | Cumulo-strati | 616 | 83.6 | 83.2 | 79.0 | S. E. | Cumulo-strati | 623 | 84.5 | 84.7 | 81.0 | S. S. W. | Ditto | 91.7 | 84.5 | 77.3 | 107.3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 24 | | |
| 630 | 91.3 | 90.0 | 82.0 | S.S.W. | Ditto | 613 | 88.0 | 87.0 | 81.8 | S. | Cloudy | 623 | 84.5 | 84.7 | 81.0 | S. S. W. | Ditto | 92.8 | 86.7 | 80.5 | 107.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 25 | | |
| 701 | 81.0 | 79.8 | 78.2 | S. | Raining | 682 | 79.0 | 79.0 | 77.7 | S. W. | Cumulo-strati | 701 | 80.0 | 80.2 | 78.8 | S. E. | Cloudy | 90.5 | 85.0 | 79.4 | 102.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 26 | | |
| 719 | 89.0 | 88.4 | 80.0 | S.S.W. | Cumuli | 702 | 88.7 | 87.2 | 80.3 | S. W. | Cumulo-strati | 716 | 85.0 | 85.0 | 80.3 | S. W. | Cirro-strati | 90.4 | 85.0 | 79.6 | 106.8 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 27 | | |
| 685 | 91.6 | 90.2 | 82.2 | S. E. | Cumulo-strati | 654 | 86.0 | 85.7 | 81.3 | S. W. | Ditto | 716 | 85.0 | 85.0 | 80.3 | S. W. | Ditto | 92.2 | 86.4 | 80.6 | 105.2 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 28 | | |
| 651 | 93.4 | 92.6 | 83.0 | S.S.W. | Ditto | 598 | 90.8 | 90.2 | 82.9 | S. W. | Cumulo-strati | 601 | 86.4 | 86.4 | 82.3 | S. | Clear | 94.6 | 88.1 | 81.5 | 110.8 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 29 | | |
| 29.611 | 88.6 | 87.6 | 81.8 | .. | .. | 29.594 | 87.1 | 86.2 | 81.2 | .. | .. | 29.613 | 83.3 | 83.3 | 80.1 | .. | .. | 90.8 | 85.7 | 80.6 | 104.0 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 30 | | |
| .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 31 | | | |

Hourly register kept at the Surveyor General's Office, Calcutta, for the Month of September, 1850.

| Date. | Observations made at Sun-rise. | | | | | Maximum Pressure observed at 9h. 50m. | | | | | Observations made at apparent noon. | | | | | | |
|-------|--------------------------------|---------|----------|-------------------|----------------|---------------------------------------|--------------|---------|----------|---------------|-------------------------------------|---------------------|--------------|---------|----------|------------------|----------------|
| | Temperature. | | | Wind. | Aspect of Sky. | Bar. F. 32° red. to | Temperature. | | | Wind. | Aspect of Sky. | Bar. F. 32° red. to | Temperature. | | | | |
| | Of Mer. | Of Air. | W. Bulb. | | | | Of Mer. | Of Air. | W. Bulb. | | | | Of Mer. | Of Air. | W. Bulb. | | |
| 1S | Inches | ° | | | | Inches | ° | | | | | Inches | ° | | | | Aspect of Sky. |
| 2 | 29.756 | 82.3 | S. | Cirro-cumuli | 29.811 | 89.2 | 87.6 | 82.2 | S. E. | Cirro-cumuli | 29.762 | 91.0 | 89.0 | 82.2 | E. | Cumulo-strati | |
| 3 | .777 | 80.0 | S. E. | Cirro-strati | .849 | 88.6 | 86.6 | 81.0 | E. S. E. | Cumulo-strati | .795 | 92.2 | 90.2 | 83.0 | E. S. E. | Ditto | |
| 4 | .779 | 80.3 | S. E. | Ditto | .837 | 89.7 | 87.4 | 81.3 | S. W. | Ditto | .790 | 90.7 | 90.6 | 83.0 | S. W. | Ditto | |
| 5 | .748 | 81.6 | S. S. W. | Clear | .784 | 90.0 | 89.5 | 81.7 | S. W. | Cirro-strati | .763 | 91.6 | 90.3 | 82.0 | S. W. | Ditto | |
| 6 | .718 | 83.3 | S. S. W. | Scattered-clouds | .792 | 85.2 | 83.6 | 78.7 | N. W. | Cloudy | .728 | 89.6 | 89.9 | 82.7 | S. S. E. | Cumulo-strati | |
| 7 | .732 | 81.4 | N. E. | Cloudy | .755 | 88.7 | 86.3 | 82.2 | S. E. | Ditto | .713 | 89.0 | 86.4 | 81.2 | S. S. E. | Cloudy | |
| 8 | .658 | 79.8 | S. W. | Cirro-strati | .674 | 87.4 | 86.6 | 81.3 | S. W. | Cumulo-strati | .639 | 90.7 | 90.4 | 82.9 | S. S. W. | Cumulo-strati | |
| 9 | .614 | 81.0 | S. | Ditto | .650 | 89.0 | 88.3 | 82.2 | S. W. | Ditto | .616 | 91.8 | 90.4 | 82.8 | S. W. | Ditto* | |
| 10 | .627 | 81.5 | S. E. | Ditto | .674 | 88.8 | 86.2 | 81.5 | S. E. | Cirro-strati | .662 | 87.3 | 83.3 | 81.1 | S. | Raining | |
| 11 | .636 | 81.3 | E. S. E. | Cloudy | .660 | 87.2 | 85.8 | 82.2 | S. S. E. | Cumulo-strati | .618 | 90.6 | 89.3 | 84.0 | S. E. | Cumulo-strati | |
| 12 | .569 | 81.6 | N. E. | Ditto | .608 | 83.6 | 84.7 | 82.6 | N. E. | Cloudy | .553 | 88.0 | 86.8 | 83.3 | S. W. | Cloudy | |
| 13 | .524 | 81.4 | N. W. | Ditto | .574 | 82.2 | 82.7 | 81.5 | N. E. | Raining | .536 | 83.2 | 83.4 | 81.9 | N. N. W. | Drizzly | |
| 14 | .518 | 79.0 | N. W. | Ditto | .548 | 85.2 | 84.2 | 80.8 | N. | Cloudy | .501 | 86.4 | 85.3 | 81.5 | N. W. | Cloudy | |
| 15 | .485 | 80.0 | N. W. | Ditto | .525 | 82.4 | 82.6 | 80.8 | W. | Ditto | .496 | 81.4 | 81.8 | 80.4 | S. W. | Drizzly | |
| 16 | .619 | 79.6 | S. E. | Ditto | .680 | 87.6 | 86.8 | 82.0 | S. W. | Cumuli | .658 | 90.0 | 89.3 | 82.8 | S. | Cumulo-strati | |
| 17 | .744 | 78.3 | N. E. | Cirro-strati | .784 | 88.7 | 85.8 | 81.3 | S. E. | Cumulo-strati | .734 | 91.5 | 90.0 | 81.3 | S. S. E. | Cumulo-strati | |
| 18 | .695 | 80.0 | S. S. W. | Ditto | .733 | 87.3 | 85.2 | 81.5 | E. | Ditto | .684 | 91.0 | 89.3 | 82.0 | E. S. E. | Ditto | |
| 19 | .668 | 80.2 | S. E. | Ditto | .699 | 89.1 | 87.4 | 81.2 | S. E. | Ditto | .678 | 90.8 | 88.7 | 81.4 | S. E. | Ditto | |
| 20 | .715 | 80.5 | E. | Cloudy | .732 | 89.2 | 87.6 | 81.3 | E. S. E. | Ditto | .680 | 91.0 | 88.9 | 82.6 | E. | Raining | |
| 21 | .741 | 76.3 | N. N. E. | Ditto | .763 | 84.0 | 83.8 | 79.6 | N. E. | Raining | .722 | 85.7 | 76.2 | 75.2 | N. E. | Scattered-clouds | |
| 22S | .723 | 76.0 | N. E. | Ditto | .743 | 81.8 | 81.0 | 77.7 | N. E. | Cumulo-strati | .706 | 82.2 | 82.4 | 78.8 | N. E. | Cloudy | |
| 23 | .661 | 76.4 | E. | Raining | .692 | 78.8 | 79.6 | 78.0 | E. | Cloudy | .664 | 83.5 | 83.4 | 79.3 | E. | Ditto | |
| 24 | .675 | 76.8 | E. | Drizzly | .718 | 82.0 | 80.6 | 76.6 | E. | Ditto | .681 | 81.9 | 80.9 | 77.0 | E. | Ditto | |
| 25 | .689 | 78.0 | E. | Cloudy | .722 | 78.9 | 79.0 | 77.7 | S. E. | Ditto | .690 | 79.4 | 80.0 | 78.1 | E. | Drizzly | |
| 26 | .822 | 78.0 | E. | Nimbi | .875 | 82.4 | 81.8 | 78.3 | S. E. | Ditto | .847 | 85.8 | 85.3 | 81.0 | E. S. E. | Nimbi | |
| 27 | .918 | 78.8 | E. S. E. | Scattered-clouds. | .958 | 86.4 | 85.2 | 80.0 | S. E. | Cumulo-strati | .920 | 85.2 | 82.7 | 78.4 | E. S. E. | Cumulo-strati | |
| 28 | .930 | 77.8 | S. E. | Ditto | .964 | 84.5 | 84.0 | 80.0 | S. E. | Ditto | .924 | 87.5 | 85.0 | 79.7 | N. E. | Ditto | |
| 29S | .903 | 77.4 | S. E. | Cloudy | .948 | 85.3 | 83.2 | 79.3 | S. E. | Ditto | .889 | 88.8 | 87.8 | 80.0 | S. E. | Ditto | |
| 30 | .903 | 75.8 | S. S. W. | Foggy | .935 | 85.4 | 83.8 | 79.0 | S. S. W. | Ditto | .893 | 89.2 | 87.8 | 78.9 | S. E. | Ditto | |
| Mean | 29.707 | 79.5 | .... | ..... | 29.749 | 85.4 | 84.5 | 80.4 | .... | ..... | 29.711 | 87.4 | 86.3 | 80.9 | .... | ..... |  |

[*Meteorological Register, continued.*]

| Observations made at 2h. 40m. | | | | | | | | | | Minimum Pressure observed at 4 p. m. | | | | | | | | | | Observations made at sun-set. | | | | | | | | | | Rain Gauges. | | Moon & Phases. | | Date. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------------|---------|----------|--------|---------------------|-------|----------------|---------------------|---------|----------|--------------------------------------|---------------------|--------------|---------|----------|--------|---------------------|-------|----------------|---------------------|-------------------------------|----------|--------|---------------------|--------------|---------|----------|--------|---------------------|-------|----------------|-------------------------------|----------------|----------------|-------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|----------|--------|---------------------|---------|---------|
| Temperature. | | | | | Wind. | Aspect of Sky. | Bar. red. to 32° F. | | | | | Temperature. | | | | | Wind. | Aspect of Sky. | Bar. red. to 32° F. | | | | | Temperature. | | | | | Wind. | Aspect of Sky. | Max. and Minimum Thermometer. | | In sun's rays. | | Feet. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | | | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | | | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | | | Of Mer. | Of Air. | W. Bulb. | | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Inches | Bar. red. to 32° F. | Of Mer. | Of Air. |

General's Office, Calcutta, for the Month of October, 1850.

| Date. | Observations made at Sun-rise. | | | | Maximum Pressure observed at 9h. 50m. | | | | Observations made at apparent noon. | | | |
|-------|--------------------------------|---------|---------|----------|---------------------------------------|----------------|------------|---------|-------------------------------------|----------|----------|----------------|
| | Bar. F. to | Of Mer. | Of Air. | W. Bulb. | Wind. | Aspect of Sky. | Bar. F. to | Of Mer. | Of Air. | W. Bulb. | Wind. | Aspect of Sky. |
| | Inches | ° | ° | ° | | | Inches | ° | ° | ° | | |
| 1 | .. | .. | .. | .. | .. | .. | 29.911 | 89.0 | 89.0 | 82.0 | S. W. | Cumulo-strati |
| 2 | 30.019 | 75.3 | 75.5 | 73.6 | N. E. | .. | 30.029 | 89.0 | 89.5 | 83.0 | S. W. | Ditto |
| 3 | 29.927 | 76.2 | 76.7 | 75.3 | N. E. | .. | 29.970 | 90.0 | 90.0 | 85.0 | S. S. W. | Cloudy |
| 4 | .906 | 77.8 | 78.8 | 77.3 | N. E. | .. | .970 | 90.0 | 88.5 | 81.5 | S. W. | Cirro-cumuli |
| 5 | .917 | 76.2 | 77.2 | 75.8 | S. W. | .. | | | | | | |
| 6 | .866 | 75.2 | 75.5 | 74.8 | S. | .. | | | | | | |
| 7 | .795 | 78.6 | 79.5 | 78.4 | S. | .. | | | | | | |
| 8 | .794 | 78.0 | 78.2 | 77.1 | W. S. W. | .. | .795 | 91.8 | 91.0 | 83.8 | N. | Cumulo-strati |
| 9 | .825 | 76.2 | 76.5 | 72.0 | N. W. | .. | .766 | 89.8 | 90.0 | 83.8 | S. | Ditto |
| 10 | .912 | 71.0 | 71.4 | 69.0 | N. W. | .. | .778 | 91.0 | 91.0 | .. | S. W. | Ditto |
| 11 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 12 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 13 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 14 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 15 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 16 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 17 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 18 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 19 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 20 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 21 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 22 | 30.019 | 75.3 | 75.5 | 73.6 | N. E. | .. | 30.017 | 83.9 | 83.0 | 77.0 | N. E. | Cloudy |
| 23 | 29.927 | 76.2 | 76.7 | 75.3 | N. E. | .. | 29.982 | 87.8 | 86.6 | 79.0 | E. | Cumulo-strati |
| 24 | .906 | 77.8 | 78.8 | 77.3 | N. E. | .. | .901 | 86.0 | 84.8 | 78.7 | E. | Ditto |
| 25 | .917 | 76.2 | 77.2 | 75.8 | S. W. | .. | .905 | 88.5 | 87.3 | 78.7 | N. E. | Ditto |
| 26 | .866 | 75.2 | 75.5 | 74.8 | S. | .. | .906 | 86.4 | 80.8 | 77.8 | W. N. W. | Cloudy |
| 27 | .795 | 78.6 | 79.5 | 78.4 | S. | .. | .850 | 86.4 | 85.7 | 80.0 | S. W. | Cumulo-strati |
| 28 | .794 | 78.0 | 78.2 | 77.1 | W. S. W. | .. | .767 | 88.9 | 88.0 | 81.2 | N. W. | Ditto |
| 29 | .825 | 76.2 | 76.5 | 72.0 | N. W. | .. | .769 | 87.0 | 87.0 | 82.0 | W. N. W. | Cumuli |
| 30 | .912 | 71.0 | 71.4 | 69.0 | N. W. | .. | .830 | 87.6 | 86.3 | 72.2 | N. W. | Cirro-strati |
| 31 | .. | .. | .. | .. | .. | .. | .895 | 86.0 | 85.3 | 71.9 | W. N. W. | Ditto |
| Mean | 29.885 | 76.1 | 76.6 | 74.8 | .. | .. | 29.885 | 87.9 | 87.3 | 80.3 | .. | .. |

[*Meteorological Register, continued.*]

| Observations made at 2h. 40m. | | | | | Minimum Pressure observed at 4 p. m. | | | | | Observations made at sun-set. | | | | | Maximum and Minimum Thermometer. | | | Rain Gauges. | | Moon's Phases | Date. | |
|-------------------------------|---------|---------|----------|------------------------|--------------------------------------|---------|---------|----------|------------------------|-------------------------------|---------|---------|----------|------------------------|----------------------------------|-------|------|----------------------------|-----------|---------------|-------|-----------|
| Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Aspect of Sky. | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Aspect of Sky. | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Aspect of Sky. | Max. | Mean. | Min. | Max. Therm. in sun's rays. | Upper. 4. | | | Lower. 4. |
| Inches | ° | ° | ° | | Inches | ° | ° | ° | | Inches | ° | ° | ° | | ° | ° | ° | ° | Inch. | | | Feet. |
| 29.908 | 90.0 | 89.5 | 82.0 | S. W. Cirro-cumuli | .. | .. | .. | .. | ..... | .. | .. | .. | .. | ..... | .. | .. | .. | .. | .. | 1.77 | .. | |
| 29.942 | 84.4 | 83.4 | 77.0 | N. E. Cloudy | 29.926 | 82.8 | 82.3 | 77.3 | N. E. Cloudy | 29.937 | 80.3 | 80.0 | 76.0 | N. E. Scatd. clouds | 86.0 | .. | .. | .. | .. | 0.14 | ☉ | |
| .901 | 86.0 | 85.0 | 78.3 | N. W. Cumulo-strati | .895 | 86.2 | 85.3 | 78.4 | N. Cumulo-strati | .903 | 84.0 | 83.0 | 78.3 | w. s. w. Cumulo-strati | 89.8 | 82.8 | 75.8 | 106.0 | .. | .. | ☉ | |
| .837 | 88.6 | 88.0 | 78.3 | S. W. Ditto | .831 | 89.0 | 87.7 | 77.6 | W. Cumulo-cumuli | .850 | 85.2 | 83.9 | 79.3 | S. W. Ditto | 89.8 | 83.5 | 77.2 | 107.4 | .. | .. | ☉ | |
| .841 | 87.1 | 83.9 | 78.4 | S. S. E. Ditto | .853 | 80.0 | 78.9 | 75.0 | S. Cloudy | .867 | 78.4 | 78.3 | 75.3 | S. Raining | 90.1 | 84.5 | 78.8 | .. | .. | 0.14 | ☉ | |
| .840 | 83.3 | 83.0 | 77.4 | S. W. Ditto | .831 | 83.5 | 82.4 | 76.9 | S. Cirro-strati | .847 | 81.0 | 80.4 | 76.4 | S. E. Cirro-cumuli | 86.0 | 81.5 | 77.0 | .. | .. | 0.78 | ☉ | |
| .762 | 84.5 | 84.0 | 79.4 | S. W. Cloudy | .780 | 84.7 | 84.8 | 80.3 | S. W. Drizzly | .786 | 83.1 | 82.8 | 78.6 | S. S. W. Cloudy | 88.0 | 81.9 | 75.0 | .. | .. | 0.12 | ☉ | |
| .693 | 89.0 | 87.5 | 79.9 | w. s. w. Cumulo-strati | .696 | 88.2 | 87.0 | 80.3 | w. s. w. Cumulo-strati | .699 | 86.0 | 85.2 | 80.3 | W. Cirro-strati | 91.2 | 85.6 | 79.9 | .. | .. | 0.58 | ☉ | |
| .779 | 85.8 | 84.7 | 73.0 | N. W. Ditto | .772 | 84.9 | 83.0 | 71.8 | w. s. w. Ditto | .783 | 85.5 | 85.2 | 80.5 | w. s. w. Ditto | 90.3 | 84.3 | 78.2 | .. | .. | 0.08 | ☉ | |
| .835 | 87.3 | 86.7 | 72.3 | W. S. W. Clear | .834 | 86.5 | 85.2 | 71.5 | W. Clear | .846 | 82.0 | 80.3 | 73.3 | W. Clear | 88.0 | 82.2 | 76.4 | .. | .. | .. | ☉ | |
| 29.890 | 86.8 | 85.8 | 77.9 | ..... | 29.812 | 85.3 | 84.3 | 76.9 | ..... | 29.825 | 82.5 | 82.0 | 77.2 | ..... | 88.8 | 82.9 | 76.6 | 106.7 | .. | 3.61 | ☉ | |

For the Meteorological General's Office, Calcutta, for the Month of November, 1850.

| Date. | Observations made at Sun-rise. | | | | | Maximum Pressure observed at 9h. 50m. | | | | | Observations made at apparent noon. | | | | |
|-------|--------------------------------|---------|---------|----------|-----------------|---------------------------------------|---------|---------|----------|-----------------------|-------------------------------------|---------|---------|----------|----------------|
| | Temperature. | | Wind. | | Aspect of Sky. | Temperature. | | Wind. | | Aspect of Sky. | Temperature. | | Wind. | | Aspect of Sky. |
| | Bar. F. 32° red. to | Of Mer. | Of Air. | W. Bulb. | | Bar. F. 32° red. to | Of Mer. | Of Air. | W. Bulb. | | Bar. F. 32° red. to | Of Mer. | Of Air. | W. Bulb. | |
| 1 | Inches 29.910 | 70.8 | 71.5 | 68.8 | Cirro-strati | Inches 29.934 | 82.8 | 83.0 | 72.0 | Cirro-strati | Inches 29.885 | 86.3 | 85.8 | 72.0 | Clear |
| 2 | .913 | 73.0 | 73.5 | 72.3 | Clear | .947 | 84.1 | 84.5 | 77.4 | Clear | .886 | 88.0 | 87.0 | 77.3 | Ditto |
| 3 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 4 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 5 | .. | .. | .. | .. | .. | .967 | 80.2 | 81.0 | 73.0 | Clear | .912 | 85.0 | 83.8 | 69.4 | Clear |
| 6 | .945 | 69.2 | 70.3 | 68.0 | Clear | .938 | 81.3 | 82.0 | 71.4 | Ditto | .928 | 85.0 | 84.9 | 73.0 | Cumulo-strati |
| 7 | .957 | 73.2 | 73.5 | 70.6 | Cirro-strati | 30.004 | 81.6 | 82.0 | 75.0 | E. Cirro-cumuli | .957 | 86.2 | 85.0 | 74.8 | Cumuli |
| 8 | .959 | 76.0 | 76.3 | 73.8 | N. N. E. Cloudy | .006 | 77.7 | 78.0 | 74.4 | N. N. E. Cloudy | .975 | 81.0 | 80.3 | 74.2 | Cloudy |
| 9 | .934 | 74.0 | 74.3 | 72.6 | Ditto | 29.977 | 76.3 | 76.7 | 73.6 | Ditto | .901 | 80.9 | 80.5 | 75.0 | Ditto |
| 10 | .878 | 75.0 | 75.3 | 72.0 | Ditto | .919 | 76.7 | 76.8 | 72.3 | Ditto | .876 | 78.2 | 78.0 | 72.8 | Ditto |
| 11 | .. | .. | .. | .. | .. | .798 | 78.0 | 78.8 | 73.3 | Ditto | .752 | 77.2 | 77.3 | 73.4 | Ditto |
| 12 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 13 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 14 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 15 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 16 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 17 | .970 | 68.0 | 68.7 | 67.0 | Cirro-cumuli | 30.004 | 78.0 | 78.0 | 73.0 | Clear | .962 | 81.9 | 81.0 | 70.6 | Clear |
| 18 | .946 | 65.5 | 66.0 | 65.0 | Clear | .004 | 78.3 | 78.0 | 70.0 | N. N. W. Cirro-cumuli | .968 | 82.0 | 81.5 | 69.8 | Ditto |
| 19 | .887 | 65.7 | 65.9 | 63.9 | N. W. Ditto | 29.971 | 76.0 | 76.3 | 69.5 | N. N. W. Clear | .980 | 81.3 | 81.5 | 72.1 | Ditto |
| 20 | .874 | 64.0 | 64.3 | 61.0 | Ditto | .915 | 75.9 | 75.6 | 69.2 | N. W. Ditto | .961 | 81.2 | 80.3 | 71.8 | Ditto |
| 21 | 30.009 | 61.9 | 62.8 | 60.0 | N. W. W. Ditto | .938 | 75.0 | 75.5 | 68.2 | W. Ditto | .900 | 79.0 | 79.2 | 67.0 | Clear |
| 22 | .056 | 63.4 | 64.3 | 62.2 | Ditto | 30.063 | 76.0 | 76.6 | 67.2 | N. N. W. Ditto | 30.012 | 82.0 | 81.7 | 66.7 | Ditto |
| 23 | .027 | 62.7 | 63.0 | 60.8 | N. N. W. Ditto | .110 | 76.0 | 76.4 | 66.2 | N. N. W. Ditto | .052 | 82.2 | 81.8 | 65.6 | Ditto |
| 24 | .067 | 63.7 | 64.0 | 62.8 | Ditto | .087 | 72.0 | 66.8 | 65.0 | N. N. W. Ditto | .032 | 77.8 | 77.0 | 66.1 | Ditto |
| 25 | .063 | 63.3 | 64.3 | 62.7 | .. | .088 | 75.3 | 75.0 | 68.7 | N. Ditto | .050 | 78.7 | 77.4 | 67.2 | Ditto |
| 26 | .053 | 62.0 | 63.0 | 61.0 | .. | .109 | 74.5 | 74.8 | 66.9 | N. Ditto | .072 | 78.1 | 77.5 | 65.4 | Ditto |
| 27 | .020 | 60.2 | 61.3 | 60.0 | Cirro-strati | .096 | 73.6 | 74.0 | 66.0 | N. N. W. Ditto | .045 | 78.5 | 77.5 | 65.8 | Ditto |
| 28 | .073 | 62.0 | 62.7 | 61.5 | Ditto | .085 | 73.0 | 73.8 | 66.7 | N. Ditto | .036 | 78.2 | 77.8 | 66.2 | Ditto |
| 29 | .078 | 63.8 | 64.5 | 60.7 | Ditto | .115 | 73.0 | 73.6 | 65.4 | N. Cirro-strati | .082 | 73.2 | 73.0 | 65.5 | Clear |
| 30 | .068 | 60.0 | 61.0 | 56.5 | Ditto | .124 | 72.3 | 73.0 | 62.5 | N. N. W. Clear | .086 | 76.4 | 76.0 | 62.0 | Ditto |
| Mean | 29.985 | 66.5 | 67.2 | 65.0 | ..... | 30.015 | 76.5 | 76.7 | 69.3 | .... | 29.967 | 80.6 | 80.1 | 69.5 | ..... |

[*Meteorological Register, continued.*]

[illegible]

| Observations made at Sun-rise. | | | | | | | | | | Observations made at apparent noon. | | | | | | | | | | Maximum Pressure observed at 9h. 50m. | | | | | | | | | |
|--------------------------------|--------------|---------|---------|----------|--------|--------------|----------------|--------------|---------|-------------------------------------|----------|---------------|--------|----------------|--------------|---------|---------|--------------|--------|---------------------------------------|----------------|--|--|--|--|--|--|--|--|
| Date. | Temperature. | | | | | Wind. | Aspect of Sky. | Temperature. | | | | | Wind. | Aspect of Sky. | Temperature. | | | | | Wind. | Aspect of Sky. | | | | | | | | |
| | Bar. red. to | Of Mer. | Of Air. | W. Bulb. | Inches | | | Bar. red. to | Of Mer. | Of Air. | W. Bulb. | Inches | | | Bar. red. to | Of Mer. | Of Air. | W. Bulb. | Inches | | | | | | | | | | |
| 1S | 30.067 | 60.4 | 61.0 | 58.0 | N.W. | Clear | 30.099 | 71.6 | 72.0 | 63.7 | N.W. | Clear | 30.050 | 76.4 | 76.5 | 66.5 | N. | Clear | | | | | | | | | | | |
| 2 | .023 | 62.0 | 62.5 | 60.5 | W. | Ditto | .078 | 69.6 | 70.0 | 64.5 | N. | Cloudy | .018 | 76.6 | 75.8 | 66.0 | N.W. | Cloudy | | | | | | | | | | | |
| 3 | 29.982 | 62.5 | 63.0 | 61.0 | W. | Ditto | .038 | 71.0 | 71.7 | 65.9 | N. | Clear | 29.972 | 77.3 | 77.0 | 70.0 | N. | Clear | | | | | | | | | | | |
| 4 | 30.005 | 64.7 | 65.5 | 64.0 | N. | Cloudy | .077 | 72.0 | 72.5 | 67.9 | N. | Cloudy | 30.019 | 79.3 | 79.6 | 69.0 | N. | Ditto | | | | | | | | | | | |
| 5 | 29.995 | 67.0 | 68.5 | 66.0 | S.W. | Ditto | .114 | 75.0 | 75.3 | 68.5 | N. | Clear | .065 | 79.9 | 79.6 | 68.8 | W. | Cirri | | | | | | | | | | | |
| 6 | 30.068 | 60.0 | 60.3 | 59.0 | N. | Cumuli | .133 | 71.2 | 72.0 | 66.0 | N. | Cumuli | .071 | 78.2 | 77.2 | 63.8 | N.N.W. | Clear | | | | | | | | | | | |
| 7 | .065 | 59.7 | 60.5 | 59.0 | N. | Clear | .124 | 69.9 | 70.5 | 61.2 | N.N.W. | Clear | .061 | 77.0 | 76.3 | 65.0 | N.W. | Ditto | | | | | | | | | | | |
| 8 | .034 | 61.0 | 61.4 | 59.0 | N.W. | Ditto | .093 | 72.7 | 74.0 | 62.2 | N.N.W. | Ditto | .026 | 77.7 | 76.7 | 66.9 | N. | Ditto | | | | | | | | | | | |
| 9 | .104 | 61.0 | 61.3 | 60.0 | W. | Ditto | .090 | 71.0 | 71.9 | 65.0 | N.N.W. | Ditto | .055 | 73.0 | 72.2 | 66.7 | N.W. | Ditto | | | | | | | | | | | |
| 10 | .005 | 64.5 | 65.5 | 63.0 | N.N.W. | Ditto | .067 | 73.0 | 71.8 | 66.3 | S.W. | Ditto | .021 | 78.5 | 78.0 | 66.8 | S.W. | Ditto | | | | | | | | | | | |
| 11 | .005 | 64.5 | 65.5 | 63.0 | S.E. | Foggy | .058 | 73.5 | 74.2 | 70.0 | N. | Ditto | 29.989 | 80.8 | 81.0 | 70.5 | S.W. | Ditto | | | | | | | | | | | |
| 12 | 29.992 | 66.5 | 67.0 | 65.0 | N. | Cumuli | 29.983 | 71.8 | 72.2 | 67.8 | N. | Cumuli | 30.044 | 94.2 | 94.0 | 67.0 | W. | Cumuli | | | | | | | | | | | |
| 13 | 30.013 | 58.7 | 59.0 | 53.7 | N. | Clear | 30.086 | 69.8 | 70.5 | 58.4 | N. | Clear | .055 | 73.0 | 71.7 | 59.0 | N. | Clear | | | | | | | | | | | |
| 14 | .036 | 56.5 | 57.5 | 53.0 | N.E. | Ditto | .094 | 66.3 | 67.0 | 57.8 | N. | Ditto | .088 | 74.0 | 73.7 | 63.8 | N. | Ditto | | | | | | | | | | | |
| 15 | .084 | 56.7 | 57.5 | 54.5 | N. | Ditto | .145 | 70.2 | 70.5 | 63.0 | N. | Ditto | .082 | 75.2 | 74.5 | 63.7 | W. | Ditto | | | | | | | | | | | |
| 16 | .078 | 56.4 | 57.0 | 56.3 | N. | Ditto | .131 | 67.2 | 68.2 | 62.4 | N. | Ditto | .078 | 74.0 | 73.1 | 62.7 | W. | Ditto | | | | | | | | | | | |
| 17 | .067 | 57.5 | 58.0 | 56.0 | N. | Ditto | .123 | 67.0 | 69.3 | 61.8 | N. | Ditto | .083 | 75.8 | 74.6 | 64.4 | N.N.W. | Ditto | | | | | | | | | | | |
| 18 | .091 | 57.5 | 57.8 | 56.4 | N. | Ditto | .134 | 70.0 | 70.0 | 63.7 | E.S.E. | Ditto | .098 | 77.3 | 76.8 | 67.0 | S.W. | Ditto | | | | | | | | | | | |
| 19 | .091 | 58.2 | 58.8 | 58.0 | N.E. | Ditto | .142 | 71.3 | 72.2 | 65.2 | S.W. | Cumulo-strati | .112 | 78.0 | 77.8 | 69.6 | S.W. | Ditto | | | | | | | | | | | |
| 20 | .097 | 63.0 | 63.8 | 63.0 | N.E. | Cloudy | .159 | 73.2 | 73.2 | 69.9 | N.E. | Cirro-strati | .098 | 76.6 | 75.6 | 63.4 | N.W. | Ditto | | | | | | | | | | | |
| 21 | .082 | 59.4 | 60.0 | 58.5 | N. | Clear | .146 | 68.3 | 69.4 | 65.2 | N. | Clear | .090 | 77.0 | 76.3 | 64.6 | N.W. | Cirro-strati | | | | | | | | | | | |
| 22S | .095 | 57.5 | 57.8 | 57.0 | N.W. | Ditto | .143 | 69.2 | 70.6 | 64.0 | N.N.W. | Cirro-strati | .086 | 78.0 | 77.8 | 66.7 | W.S.W. | Ditto | | | | | | | | | | | |
| 23 | .076 | 60.0 | 60.5 | 59.4 | N. | Cirro-strati | .138 | 71.0 | 72.2 | 66.1 | N.N.W. | Clear | .087 | 76.4 | 75.8 | 63.7 | N.N.W. | Clear | | | | | | | | | | | |
| 24 | .071 | 58.9 | 59.3 | 58.4 | N. | Clear | .137 | 68.5 | 69.0 | 63.3 | N.N.W. | Clear | .139 | 75.2 | 74.0 | 61.3 | S. | Cirro-strati | | | | | | | | | | | |
| 25 | .129 | 56.0 | 57.0 | 54.7 | N. | Cirro-strati | .196 | 67.6 | 68.9 | 59.0 | E.S.E. | Cirro-strati | .120 | 74.7 | 73.8 | 62.3 | W.S.W. | Cumuli | | | | | | | | | | | |
| 26 | .123 | 55.8 | 56.0 | 55.2 | N.N.E. | Foggy | .183 | 66.8 | 68.3 | 60.6 | N.N.W. | Clear | .152 | 74.2 | 72.2 | 62.4 | N.N.W. | Ditto | | | | | | | | | | | |
| 27 | .148 | 55.0 | 55.0 | 54.0 | N. | Clear | .219 | 65.2 | 66.7 | 60.4 | N.N.W. | Ditto | .153 | 75.8 | 74.8 | 61.3 | N. | Clear | | | | | | | | | | | |
| 28 | .152 | 56.5 | 56.6 | 55.4 | N.N.W. | Ditto | .220 | 68.0 | 70.0 | 61.7 | N.N.E. | Ditto | .127 | 75.6 | 74.7 | 64.0 | N. | Ditto | | | | | | | | | | | |
| 29 | .141 | 56.0 | 56.4 | 55.0 | N. | Ditto | .191 | 67.0 | 68.5 | 62.0 | N.W. | Ditto | .050 | 74.7 | 74.6 | 64.5 | W. | Ditto | | | | | | | | | | | |
| 30 | .070 | 57.0 | 58.3 | 57.0 | N. | Ditto | .125 | 66.2 | 68.2 | 61.3 | N.W. | Ditto | 30.068 | 76.3 | 75.8 | 65.0 | .... | ..... |  |  |  |  |  |  |  |  |  |  |  |
| Mean | 30.066 | 59.5 | 60.2 | 58.4 | .... | ..... | 30.122 | 69.4 | 70.7 | 63.5 | .... | ..... | 30.068 | 76.3 | 75.8 | 65.0 | .... | ..... |  |  |  |  |  |  |  |  |  |  |  |

[Meteorological Register, continued.]

| Observations made at 2hs. 40m. | | | | | | | | | | Minimum Pressure observed at 4 p. m. | | | | | | | | | | Observations made at sun-set. | | | | | | | | | | | | | | | | | | | | | |
|--------------------------------|------|------|--------------|------|--------|----------------|--------------|------|------|--------------------------------------|---------------|--------|----------------|--------------|------|------|---------------|--------|------|-------------------------------|--------------|------|---------------|--------------|------|------|----------------|--------------|---------------|--------|--------------|------|------|----------------|---------------|--------|------|--------------|------|------|----------------|
| Bar. red. to | | | Temperature. | | | Aspect of Sky. | Bar. red. to | | | Temperature. | | | Aspect of Sky. | Bar. red. to | | | Temperature. | | | Aspect of Sky. | Bar. red. to | | | Temperature. | | | Aspect of Sky. | Bar. red. to | | | Temperature. | | | Aspect of Sky. | Bar. red. to | | | Temperature. | | | Aspect of Sky. |
| Inches | ° | ° | ° | ° | ° | | Inches | ° | ° | ° | ° | ° | | Inches | ° | ° | ° | ° | ° | | Inches | ° | ° | ° | ° | ° | | Inches | ° | ° | ° | ° | ° | | Inches | ° | ° | ° | ° | ° | |
| 29.975 | 77.7 | 77.3 | 66.5 | N. | Clear | 29.970 | 77.3 | 76.5 | 65.3 | N. | Clear | 29.978 | 75.0 | 74.5 | 68.0 | N. | Clear | 29.978 | 75.0 | 74.5 | 68.0 | N. | Clear | 29.978 | 75.0 | 74.5 | 68.0 | N. | Clear | 29.978 | 75.0 | 74.5 | 68.0 | N. | Clear | 29.978 | 75.0 | 74.5 | 68.0 | N. | Clear |
| .959 | 78.5 | 78.0 | 67.2 | N.W. | Ditto | .950 | 78.0 | 76.9 | 67.0 | W. | Ditto | .962 | 75.2 | 74.0 | 62.5 | W. | Ditto | .962 | 75.2 | 74.0 | 62.5 | W. | Ditto | .962 | 75.2 | 74.0 | 62.5 | W. | Ditto | .962 | 75.2 | 74.0 | 62.5 | W. | Ditto | .962 | 75.2 | 74.0 | 62.5 | W. | Ditto |
| .907 | 79.4 | 78.7 | 69.0 | N. | Ditto | .906 | 79.0 | 77.3 | 67.7 | N. | Ditto | .936 | 74.2 | 73.5 | 58.0 | N. | Scat'd clouds | .936 | 74.2 | 73.5 | 58.0 | N. | Scat'd clouds | .936 | 74.2 | 73.5 | 58.0 | N. | Scat'd clouds | .936 | 74.2 | 73.5 | 58.0 | N. | Scat'd clouds | .936 | 74.2 | 73.5 | 58.0 | N. | Scat'd clouds |
| .961 | 81.0 | 80.0 | 69.9 | N. | Ditto | .961 | 78.4 | 77.8 | 68.2 | N. | Scat'd clouds | .982 | 76.8 | 76.3 | 68.0 | N. | Cumuli | .982 | 76.8 | 76.3 | 68.0 | N. | Cumuli | .982 | 76.8 | 76.3 | 68.0 | N. | Cumuli | .982 | 76.8 | 76.3 | 68.0 | N. | Cumuli | .982 | 76.8 | 76.3 | 68.0 | N. | Cumuli |
| .997 | 80.0 | 79.2 | 67.3 | N. | Clear | .997 | 80.0 | 79.2 | 67.3 | W. | Clear | .019 | 76.0 | 75.0 | 62.7 | N. | Clear | .019 | 76.0 | 75.0 | 62.7 | N. | Clear | .019 | 76.0 | 75.0 | 62.7 | N. | Clear | .019 | 76.0 | 75.0 | 62.7 | N. | Clear | .019 | 76.0 | 75.0 | 62.7 | N. | Clear |
| 30.012 | 80.5 | 79.5 | 64.5 | N. | Clear | .003 | 79.5 | 78.6 | 63.2 | N. | Clear | .002 | 74.2 | 72.7 | 66.5 | N. | Clear | .002 | 74.2 | 72.7 | 66.5 | N. | Clear | .002 | 74.2 | 72.7 | 66.5 | N. | Clear | .002 | 74.2 | 72.7 | 66.5 | N. | Clear | .002 | 74.2 | 72.7 | 66.5 | N. | Clear |
| 29.937 | 79.5 | 78.9 | 66.5 | N.W. | Ditto | 29.990 | 78.0 | 77.8 | 65.9 | N.W. | Ditto | 29.970 | 75.2 | 74.8 | 63.9 | N.W. | Ditto | 29.970 | 75.2 | 74.8 | 63.9 | N.W. | Ditto | 29.970 | 75.2 | 74.8 | 63.9 | N.W. | Ditto | 29.970 | 75.2 | 74.8 | 63.9 | N.W. | Ditto | 29.970 | 75.2 | 74.8 | 63.9 | N.W. | Ditto |
| 30.073 | 79.5 | 79.0 | 66.2 | N.W. | Ditto | 9.54 | 78.2 | 77.0 | 65.2 | N.W. | Ditto | 30.071 | 76.0 | 74.0 | 66.3 | N.W. | Ditto | 30.071 | 76.0 | 74.0 | 66.3 | N.W. | Ditto | 30.071 | 76.0 | 74.0 | 66.3 | N.W. | Ditto | 30.071 | 76.0 | 74.0 | 66.3 | N.W. | Ditto | 30.071 | 76.0 | 74.0 | 66.3 | N.W. | Ditto |
| 29.925 | 80.8 | 80.2 | 64.5 | S.W. | Ditto | 30.061 | 79.5 | 77.9 | 65.3 | N.W. | Ditto | 29.956 | 77.0 | 74.5 | 67.0 | S.W. | Ditto | 29.956 | 77.0 | 74.5 | 67.0 | S.W. | Ditto | 29.956 | 77.0 | 74.5 | 67.0 | S.W. | Ditto | 29.956 | 77.0 | 74.5 | 67.0 | S.W. | Ditto | 29.956 | 77.0 | 74.5 | 67.0 | S.W. | Ditto |
| .906 | 84.6 | 83.2 | 69.7 | S.W. | Cumuli | .905 | 83.5 | 82.5 | 69.2 | S.W. | Ditto | .893 | 76.3 | 74.8 | 65.0 | N. | Scat'd clouds | .893 | 76.3 | 74.8 | 65.0 | N. | Scat'd clouds | .893 | 76.3 | 74.8 | 65.0 | N. | Scat'd clouds | .893 | 76.3 | 74.8 | 65.0 | N. | Scat'd clouds | .893 | 76.3 | 74.8 | 65.0 | N. | Scat'd clouds |
| .874 | 79.0 | 78.0 | 66.5 | S.W. | Clear | .877 | 78.5 | 77.2 | 64.0 | N.W. | Ditto | .917 | 80.0 | 79.3 | 71.0 | S.W. | Ditto | .917 | 80.0 | 79.3 | 71.0 | S.W. | Ditto | .917 | 80.0 | 79.3 | 71.0 | S.W. | Ditto | .917 | 80.0 | 79.3 | 71.0 | S.W. | Ditto | .917 | 80.0 | 79.3 | 71.0 | S.W. | Ditto |
| .970 | 77.0 | 76.5 | 60.5 | N.W. | Clear | .966 | 76.5 | 74.5 | 59.0 | N.W. | Ditto | .984 | 72.5 | 70.4 | 60.4 | N. | Clear | .984 | 72.5 | 70.4 | 60.4 | N. | Clear | .984 | 72.5 | 70.4 | 60.4 | N. | Clear | .984 | 72.5 | 70.4 | 60.4 | N. | Clear | .984 | 72.5 | 70.4 | 60.4 | N. | Clear |
| .992 | 74.2 | 73.5 | 58.3 | W. | Ditto | .994 | 73.5 | 72.0 | 57.2 | N.W. | Ditto | .030 | 72.5 | 71.3 | 63.0 | N. | Ditto | .030 | 72.5 | 71.3 | 63.0 | N. | Ditto | .030 | 72.5 | 71.3 | 63.0 | N. | Ditto | .030 | 72.5 | 71.3 | 63.0 | N. | Ditto | .030 | 72.5 | 71.3 | 63.0 | N. | Ditto |
| 30.023 | 76.0 | 75.3 | 63.3 | N. | Ditto | .005 | 76.0 | 74.5 | 62.5 | N.W. | Ditto | .012 | 76.3 | 74.5 | 62.5 | N.W. | Ditto | .012 | 76.3 | 74.5 | 62.5 | N.W. | Ditto | .012 | 76.3 | 74.5 | 62.5 | N.W. | Ditto | .012 | 76.3 | 74.5 | 62.5 | N.W. | Ditto | .012 | 76.3 | 74.5 | 62.5 | N.W. | Ditto |
| .018 | 76.5 | 75.8 | 63.5 | W. | Ditto | .009 | 75.5 | 74.0 | 62.0 | N. | Ditto | .022 | 72.5 | 69.5 | 63.0 | N. | Ditto | .022 | 72.5 | 69.5 | 63.0 | N. | Ditto | .022 | 72.5 | 69.5 | 63.0 | N. | Ditto | .022 | 72.5 | 69.5 | 63.0 | N. | Ditto | .022 | 72.5 | 69.5 | 63.0 | N. | Ditto |
| .009 | 75.5 | 73.8 | 61.5 | N.W. | Ditto | .021 | 77.5 | 76.0 | 65.0 | N. | Ditto | .032 | 74.2 | 72.5 | 63.8 | N.W. | Ditto | .032 | 74.2 | 72.5 | 63.8 | N.W. | Ditto | .032 | 74.2 | 72.5 | 63.8 | N.W. | Ditto | .032 | 74.2 | 72.5 | 63.8 | N.W. | Ditto | .032 | 74.2 | 72.5 | 63.8 | N.W. | Ditto |
| .025 | 77.6 | 76.0 | 64.2 | N. | Ditto | .031 | 79.5 | 78.2 | 68.1 | N.W. | Ditto | .042 | 76.8 | 73.8 | 67.4 | N.W. | Ditto | .042 | 76.8 | 73.8 | 67.4 | N.W. | Ditto | .042 | 76.8 | 73.8 | 67.4 | N.W. | Ditto | .042 | 76.8 | 73.8 | 67.4 | N.W. | Ditto | .042 | 76.8 | 73.8 | 67.4 | N.W. | Ditto |
| .033 | 79.5 | 79.0 | 67.6 | S.W. | Ditto | .036 | 78.1 | 76.6 | 68.1 | N.W. | Ditto | .050 | 74.8 | 73.6 | 68.1 | N.W. | Ditto | .050 | 74.8 | 73.6 | 68.1 | N.W. | Ditto | .050 | 74.8 | 73.6 | 68.1 | N.W. | Ditto | .050 | 74.8 | 73.6 | 68.1 | N.W. | Ditto | .050 | 74.8 | 73.6 | 68.1 | N.W. | Ditto |
| .035 | 80.2 | 78.8 | 68.4 | W. | Ditto | .038 | 77.2 | 76.0 | 62.9 | N.W. | Ditto | .052 | 73.9 | 72.7 | 62.6 | N.W. | Ditto | .052 | 73.9 | 72.7 | 62.6 | N.W. | Ditto | .052 | 73.9 | 72.7 | 62.6 | N.W. | Ditto | .052 | 73.9 | 72.7 | 62.6 | N.W. | Ditto | .052 | 73.9 | 72.7 | 62.6 | N.W. | Ditto |
| .048 | 78.0 | 77.2 | 63.7 | N.W. | Ditto | .036 | 78.0 | 76.3 | 65.5 | N.W. | Cirro-strati | .036 | 74.7 | 73.0 | 66.0 | N. | Clear | .036 | 74.7 | 73.0 | 66.0 | N. | Clear | .036 | 74.7 | 73.0 | 66.0 | N. | Clear | .036 | 74.7 | 73.0 | 66.0 | N. | Clear | .036 | 74.7 | 73.0 | 66.0 | N. | Clear |
| .033 | 78.5 | 77.7 | 65.0 | N.W. | Ditto | .010 | 79.4 | 78.0 | 62.6 | N.W. | Clear | .013 | 75.5 | 74.0 | 62.7 | N. | Clear | .013 | 75.5 | 74.0 | 62.7 | N. | Clear | .013 | 75.5 | 74.0 | 62.7 | N. | Clear | .013 | 75.5 | 74.0 | 62.7 | N. | Clear | .013 | 75.5 | 74.0 | 62.7 | N. | Clear |
| .011 | 80.0 | 79.2 | 64.0 | N.W. | Ditto | .003 | 77.4 | 76.0 | 62.0 | N.W. | Ditto | .012 | 73.8 | 72.0 | 62.2 | N. | Ditto | .012 | 73.8 | 72.0 | 62.2 | N. | Ditto | .012 | 73.8 | 72.0 | 62.2 | N. | Ditto | .012 | 73.8 | 72.0 | 62.2 | N. | Ditto | .012 | 73.8 | 72.0 | 62.2 | N. | Ditto |
| .002 | 78.0 | 77.0 | 62.4 | N.W. | Clear | .003 | 77.4 | 76.0 | 62.0 | N.W. | Ditto | .087 | 72.1 | 70.6 | 62.2 | N.W. | Cirro-strati | .087 | 72.1 | 70.6 | 62.2 | N.W. | Cirro-strati | .087 | 72.1 | 70.6 | 62.2 | N.W. | Cirro-strati | .087 | 72.1 | 70.6 | 62.2 | N.W. | Cirro-strati | .087 | 72.1 | 70.6 | 62.2 | N.W. | Cirro-strati |
| .080 | 76.6 | 76.0 | 62.6 | N.W. | Clear | .043 | 74.5 | 73.0 | 61.4 | N.W. | Cirro-cumuli | .073 | 76.2 | 74.2 | 61.4 | N.W. | Cirro-cumuli | .073 | 76.2 | 74.2 | 61.4 | N.W. | Cirro-cumuli | .073 | 76.2 | 74.2 | 61.4 | N.W. | Cirro-cumuli | .073 | 76.2 | 74.2 | 61.4 | N.W. | Cirro-cumuli | .073 | 76.2 | 74.2 | 61.4 | N.W. | Cirro-cumuli |
| .049 | 75.6 | 74.6 | 61.3 | N.W. | Clear | .043 | 74.5 | 73.0 | 60.8 | N.W. | Clear | .043 | 74.5 | 73.0 | 60.8 | N.W. | Clear | .043 | 74.5 | 73.0 | 60.8 | N.W. | Clear | .043 | 74.5 | 73.0 | 60.8 | N.W. | Clear | .043 | 74.5 | 73.0 | 60.8 | N.W. | Clear | .043 | 74.5 | 73.0 | 60.8 | N.W. | Clear |
| .085 | 76.0 | 74.2 | 62.4 | N.W. | Cumuli | .079 | 76.0 | 74.0 | 62.4 | N. | Ditto | .090 | 72.5 | 71.0 | 62.2 | N. | Ditto | .090 | 72.5 | 71.0 | 62.2 | N. | Ditto | .090 | 72.5 | 71.0 | 62.2 | N. | Ditto | .090 | 72.5 | 71.0 | 62.2 | N. | Ditto | .090 | 72.5 | 71.0 | 62.2 | N. | Ditto |
| .086 | 77.3 | 76.4 | 62.3 | N.W. | Clear | .074 | 76.7 | 75.0 | 61.6 | N. | Ditto | .079 | 73.0 | 72.0 | 61.6 | N. | Ditto | .079 | 73.0 | 72.0 | 61.6 | N. | Ditto | .079 | 73.0 | 72.0 | 61.6 | N. | Ditto | .079 | 73.0 | 72.0 | 61.6 | N. | Ditto | .079 | 73.0 | 72.0 | 61.6 | N. | Ditto |
| .048 | 77.3 | 76.0 | 63.9 | N.W. | Ditto | .024 | 76.9 | 75.3 | 63.5 | N.N.E. | Ditto | .029 | 73.4 | 71.8 | 63.4 | N.W. | Ditto | .029 | 73.4 | 71.8 | 63.4 | N.W. | Ditto | .029 | 73.4 | 71.8 | 63.4 | N.W. | Ditto | .029 | 73.4 | 71.8 | 63.4 | N.W. | Ditto | .029 | 73.4 | 71.8 | 63.4 | N.W. | Ditto |
| 29.972 | 77.2 | 77.2 | 64.0 | N.W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto |
| 30.000 | 77.2 | 77.2 | 64.0 | N.W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto |
| 30.000 | 77.2 | 77.2 | 64.0 | N.W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto |
| 30.000 | 77.2 | 77.2 | 64.0 | N.W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto |
| 30.000 | 77.2 | 77.2 | 64.0 | N.W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto |
| 30.000 | 77.2 | 77.2 | 64.0 | N.W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto | 29.952 | 77.8 | 76.3 | 63.6 | W. | Ditto |
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JOURNAL
OF THE
ASIATIC SOCIETY OF BENGAL,

EDITED BY
THE SECRETARIES.

VOL. XIX.
Nos. I. TO VII.—1850.

“ It will flourish, if naturalists, chemists, antiquaries, philologers, and men of science, in different parts of *Asia* will commit their observations to writing, and send them to the Asiatic Society at Calcutta. It will languish if such communications shall be long intermitted; and it will die away if they shall entirely cease.”—SIR WM. JONES.

CALCUTTA :
PRINTED BY J. THOMAS, BAPTIST MISSION PRESS.
1851.

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JOURNAL
OF THE
ASIATIC SOCIETY.

No. VI.—1851.

*Notes on the “Mahápurushyas,” a sect of Vaishnavas in Ásám.—By
Capt. E. T. DALTON, Political Assistant Commissioner, Asum, in
charge of Kámrup.*

Amongst various tribes of Vaishnavas in Ásám, distinguished from each other by differences in doctrinal or ceremonial points of more or less importance, I know of none that for the general respectability and intelligence of the disciples, their number and their success in making proselytes, are more deserving of attention than the Mahápurushyas or varieties of the Borpetah Shostro, a religious community widely spread throughout lower Ásám, and extending into Cooch-Bihar and N. E. Rungpore.

The word Borpetah is variously derived. Some say it is a corruption for Borpáta and means the great throne, great altar, or with reference to the grant of lands conferred on this institution, it may signify great endowment. The sect have many monasteries in different parts of Kámrup and elsewhere, but they are all regarded as subordinate to the great establishment at Borpetah, which is situated in north-western Kámrup, and gives the name to a large Pergunnah, and also to a subdivision of the district and to the station of the Joint Magistrate and Deputy Collector, in charge of this subdivision.

The Pergunnah of Borpetah and others contiguous to it are composed of low alluvial lands liable to periodical inundation. The sites of the villages &c all artificially raised, and in the rains the whole country presents the appearance of a vast lake, the raised villages with

their groves of trees forming so many islands; the communication between them, being at this period entirely by water. The retiring floods leave these plains in excellent condition for the cultivation of mustard seed, which in rotation with *Assa dhán*, or summer rice, is the staple produce of this part of the country.

Borpetah is by far the largest and most densely populated of these villages. By a census made in 1847-48, that portion of it considered as belonging exclusively to the Shostro and comprising an area of 175 acres, contained 7,368 souls, all of them Bhakats or attachás of the Shostro. From the necessity of economizing space, where raised sites are so scarce, and raising them so expensive, the huts are more closely clubbed together than they generally are in *Assamese* villages, still they have a rural rather than a town appearance, being, built without much attention to order, and the huts as well as the roads and pathways, that connect the different portions of the thickly populated grove, being all shaded by noble old trees.

To the south of the grove a large and well raised enclosure contains the great *Námghar Shostro*, or chief place of worship, and all the other sacred edifices of the institution. The Shostro is a large building with a thatched roof supported on huge posts of the most durable timber procurable. All the *Vaishnavas* in *Assam* have similar buildings for religious meetings, but this one at Borpetah is a chef d'œuvre of its kind and merits description. This section will shew

the plan of its construction. A, B and C are centre and side aisles forming the interior of the edifice; D. and E are open verandahs,

embracing three sides of the building; the fourth is finished off with an open gable across which, and contiguous to the Námghar, there is another smaller building on posts in which is contained a stone image of Vishnu and "Sála'gráms."

The Shostro is one hundred and eighty feet long by sixty in breadth supported on fourteen rows of posts. The altar, covered over with red silk, on which the Bhágavat and other sacred books are deposited under square frames of talc, is placed in the centre aisle in the south portion of the building; and receives light from the open gable above it. There are two entrances, one from the east near the altar, the other from the north facing it, besides which and the gable there is no opening for the admission of light except from spaces cut out in the ornamental carving of a cornice of wood which encircles three sides of the building under the verandah, and through which spaces the portion of the congregation, who not being admitted into the interior of the building, are obliged to confine themselves to the verandah, can see what is going on inside. Near the northern entrance to the right there is a colossal figure of Hanumán and to the left a similar image of Garúr supported on massive frames of timber and painted in bright colours. These images are not worshipped, which, indeed, might be inferred from their position between the congregation and the altar. Down the centre aisle there are two rows of large candelabra of wrought iron each capable of holding some hundreds of small oil burners to illumine the building for the evening service. It is only on great occasions that they are all used, a few near the altar being sufficient for the ordinary services. To give me a better view of the interior of the building they were all lighted for me in the day time, the morning service was then being celebrated and the vista of these pyramids of light with numerous white draped figures to assist in distributing it through the vast gloomy building had a most imposing effect. There is nothing else in the interior of the building worth noticing. The outer or verandah posts are all elaborately but rudely carved, every second or third being a caryatid representing one of the incarnations of Vishnu. None but Bhakats, or disciples, after purification and change of raiment are admitted into the interior of the Shostro. Women are excluded but may sit in the Verandah, and at certain periods join in the spiritual songs.

To the east of the Námgbar and at a distance of about twelve feet from it is a small brick temple with a dome, occupying an area of thirty-eight square feet, enshrined in which is a stone about half a cubit long bearing an impression said to be the foot print of Mádhab one of the founders of the Shostro. This is revered as a most sacred relic, and when cholera or other epidemic rages in the village and a time is in consequence appointed for solemn prayer to avert the calamity, this stone is then placed on the altar beside the Bhágavat in the Námgbar, and the people on such occasions worship fasting and in wet garments. In front of this temple there is a well, protected by a copper canopy, supported on four light pillars of the same metal, the water of which is considered very holy.

To the north of the enclosure containing these buildings, is the principal entrance, a covered structure of timber grotesquely carved and gaily painted. To the south a flight of rough stone steps conducts to the bed of a nullah and also to a small tank; to the east and west are the cloisters of the monks whom I shall now proceed to describe.

The Mahápurushyas recognize two orders of their sect, the "Udasins" or monks who have renounced the world, and devoted themselves to celibacy; and the "Grihist" or family men, or as they are also called, "Grihi," laymen.

Any Bhakat that pleases may become a Udásin or monk, on his doing so he occupies or shares with another one of the small cells or divisions of the cloisters. He lives on alms going daily his rounds to collect from his friends; and during the remainder of the day and part of the night, he should devote himself to reading or hearing read the history of the two Mahápurushyas, founders of the sect, Śāṅkar and Mádhab, called the "Lilá Charitra;" practising the three "Veds" 'hearing, singing and remembering,' contemplating and realizing to himself the attributes and form of the deity, for idols he is not allowed to worship.

Each of these monks acts as immediate spiritual adviser or confessor to one or more families of Grihis. It is said they are allowed access at all times to all parts of the house and to all members of the family, and that if the good man of the house observe the monk's long staff with brazen knob (the symbol by which they are known as Udásins in their peregrinations) planted at the entrance of his zenana, he may

not himself go in till the holy visitor comes out; but this account, suggestive as it is of somewhat too intimate a connection between the spiritual guide and his fair penitents, was not given to me by any member of the sect, though it is very generally asserted.

In the cloisters to the east and west of the Námghar, there are at present one hundred and fifty-seven monks. Long sheds substantially built and enclosed, with front Verandahs from end to end, about six feet in breadth, are divided into apartments, sixteen or twenty feet square, opening out on the verandah by one double door to each. In these apartments the monks live sometimes two together, sometimes one alone. They exercise considerable ingenuity in making their cells commodious, the simple materials of which they are composed do not give much scope for their skill and taste, but the doors and lintels are elaborately carved and the door fastenings, all different, are so many inventions for which each originator might take out a patent. The cloisters and every place connected with the Shostro, are kept scrupulously clean and neat. The monks have a small flower garden in which they cultivate flowers and flowering shrubs used in the religious ceremonies.

In the dress and appearance of these monks there is nothing peculiar to distinguish them from ordinary mortals, with the exception of the long staff already alluded to. For raiment, however, they are required to confine themselves to the simple waistcloth and a small white "chadder" or scarf, and to keep the cloths they wear at worship and at meals exclusively for those occasions.

Detached in other parts of the village there are two other sets of cloisters containing the one fifty-five, the other twenty-six monks. In one of these there is a particular seat from which the head monk reads and expounds. In consequence of a dispute there are at present two who by turns occupy this seat. The old monks are called Ata and Atoi as marks of respect.

There are in the Kámrup district one hundred and ninety-five Shostros subordinate to that of Borpetah. I know not how many there may be in other districts. All those I have seen are built exactly on the model of the parent institution, each having its establishment of Udásins in cloisters, and its "Grihis" or laymen in ordinary dwellings. Five or six of these are to a small extent endowed, that is, have received grants of land held at half rates from the former

rulers of the country, the remainder have no endowment, but they are nevertheless maintained in much better order than the generality of Shostros and temples to which extensive grants have been made, being well supported by a numerous and respectable body of disciples who all pay a very devout attention to the externals of religion.

Of the actual number of this sect I am unable to form any estimate, and from the Shostro manuscripts no information on the subject was to be derived, as they keep no record of their proselytes; but they form a considerable proportion of the population of this district (Kámrúp). I know of two villages each containing two or three thousand inhabitants, the one a village of weavers, the other a village of oil-pressers, all of whom are disciples of Borpetah; and they are numerous in all parts of the district. They also muster strong in Gowálpáráh and Cooch-Behár, and are found, I believe, even in the Dacca district. Wherever they reside they appear to regard Borpetah, with as much reverence as the Mohaminadaus pay to Mecca, though their great saints and founders, Sañkar and Mádhav, neither died nor were born there. Many respectable men holding offices in the courts of Gowhatty, or fiscal charges of Pergunnahs, have their permanent residences in, and never remove their families from, the sacred grove of Borpetah. They regard it as "the loveliest spot on earth," and a protracted absence from it, they cannot endure. Of the inhabitants of the grove generally I may safely say there is not a more intelligent or a more industrious community in the whole province.

They are most of them traders as well as cultivators of the soil, and their boats with agricultural produce, pottery, &c. are to be found in every creek in Asam, and as far down the Brahmaputra as Serájgunje. In point of education the proportion of those amongst them, that can read and write is far greater than amongst any other class of Asamese that I am acquainted with. The rising generation appear to be nearly all receiving instruction in letters.

As the sect of the Mahápurushyas have sprung up within the last four hundred years it ought not to be very difficult to trace their history, but the desire of the disciples to deify their founders has somewhat mystified their origin.

From the memoirs of his life and writings preserved in manuscript by his followers, Sañkar was born, or, I beg his pardon, the Avatár of

Saṅkar occurred at Āli Púkeri, a village of central Āsám, in the year of "Sakádit" 1385, corresponding with A. D. 1464, and departed this life or returned to heaven from Bhela, in Cooch-Behár, in Saka 1490, or A. D. 1569; and Mádhav first appeared in the family of one Hari Collítá in Saka 1433, or A. D. 1512, and died A. D. 1597. They were thus contemporaries of "Sri Chaitanya," who is adored as an incarnation of Krishna, and venerated as the founder of their religion by most of the Vaishnavas of Bengal, and from the similarity of the doctrines inculcated as well as from a tradition to that effect it may be inferred that the Asamese sectarian was indebted, directly or indirectly, to his illustrious contemporary for the system of religion he introduced. Chaitanya,* of whose career the accounts handed down to us are perhaps more to be depended on, was born at Sylhet in A. D. 1485, and died, or was last seen, at Jagannáth in A. D. 1527. The Asamese all admit the interview between him and Saṅkar, but the sect of whom I am ~~treating~~ do not wish it to be supposed that either of their founders was under any obligations to the Bengal Saint.

The *Lilá Charitra* already referred to as the received account of the life of the two Mahápurushyas, is in verse, and dates are excluded as too matter-of-fact for a poetical effusion. According to this poem Saṅkar's reputed father, named Cúsim, was one of the chiefs of the country called "Bhuyas." These chiefs have often had the government of Āsám, or of parts of Asam, absolutely in their hands, and the periods of their power are referred to as the times of the "baruh bhuyas," but though they are honourably distinguished as the days in which many important works, tanks, roads, embankments, and the like were executed, their authority as rulers appears to have been always either a provisional or a usurped one, and the expression "baruh bhuyas' rule" is now used to signify a period of anarchy.

Saṅkar's father was a "Sudra" of the caste little known except in Asam, called "Collítá." The education of his son he entrusted to a learned Brahman and the only marvels related of his childhood are his extraordinary aptitude for learning and intense application night and day to his studies without rest.

* Ward's *Hindus*, Vol. 2nd, page 173, *As. Soc. Res.* Vol. xvi. p. 110.

In his youth he was married, but his wife died, and shortly after on the death also of his father, which appears to have taken place about the same time, he distributed all his property amongst his relations, went on a pilgrimage, visited Gyah, Jagannáth and other places, and returned after an absence of twelve years. He found the civil government of his country in a very disorganized state and was importuned by his friends to resume his position as a chief to assist in restoring order, but this he declined urging that he had now to meditate on all that he had read and seen. They, however, persuaded him to take another wife, and the free gifts he received on the occasion of his marriage were of greater value than all the wealth he had formerly been possessed of. In his meditations on the Bhágavat and Puráns he appears about this time to have been assisted by a Bráhmaṇ named Ráma Ráma Guru, whom the Lilá Charitra introduces to us rather abruptly. This Bráhmaṇ was, however, the progenitor of the family, who for many generations have held the office of Shasturiah or head of the Shostro, and that may account for his being so prominently brought forward; but his assistance was not very valuable, as Sañkar did not fully comprehend the sacred books he was studying till instructed in their meaning by a Bráhmaṇ who was specially deputed by Jagannáth himself to Sañkar and made a long journey for the purpose with no other address than "Sri Sañkar, Ásám." The name of this Bráhmaṇ is not given in the Lilá Charitra but in some other work he is styled Jagadisa Misra. It was about this time that his intimacy with Mádhav commenced. Mádhav was a "Sákta," a worshipper of the female principle. One day he gave directions to his brother-in-law Rámadása to procure a goat for sacrifice, at an approaching festival in honor of Kálí. Rámadása having made known to Sañkar the commission he had received, was advised by him to return to Mádhav without having executed it. The latter displeased at what appeared to him an unwarrantable interference sought an interview with Sañkar and entered on a violent altercation with him—but Sañkar mildly reproved him and quoting from the Bhágavat expounded to him how all adoration should be paid to "Vishnu the Supreme." "For" said he, "if you pour water on the roots of the tree the leaves and branches are refreshed and strengthened by it, applied to the leaves and branches and not to the roots it is of no avail." Mádhav is stated

to have been so much struck with the aptness of this illustration that he at once prostrated himself as a disciple before Sañkar, from that hour devoted himself to the study of the Bhágavat and its commentaries, and became in time Sañkar's most efficient coadjutor in translating these works into the vernacular for the benefit of his countrymen. His merits as a translator and as a faithful follower of Sañkar are acknowledged by all the Vaishnavas in Ásám, but the Mahápurushyas regard the master and the disciple as equally entitled to adoration, and deify them both. If there be any difference, it is in favor of Mádhab. The enclosure of their great place of worship contains a temple in honor of him—his footprint, enshrined therein, is their most sacred relic. They have nothing similar in honor of Sañkar; but the anniversaries of their respective deaths are observed with the same solemnities. The success of Sañkar in proselytizing drew upon him the envious eyes of the Bráhmans, but as they dreaded meeting him in controversy, they are ~~accused~~ in the Lílá Charitra of endeavouring to throw discredit on his doctrines, by ridiculing, reviling and bullying those that received them. The disciples having brought this to Sañkar's notice, he applied to the authorities to bring about a meeting between him and the Bráhmans. This was arranged and Sañkar premising by saying that he would condemn the Bráhmans out of their own mouths asked them, if a sinner and an outcast might repeat the name of Krishna, without having made atonement and being readmitted to caste? They replied that the name of Krishna was of such efficacy that to repeat it with faith was not only permitted but enjoined by him, as the repetition of the name alone was sufficient for atonement, and in this "Kali Yúg" it is all that was necessary for man's salvation except the Bráhmans. All present declared that this was what Sañkar had been inculcating, and taking up the cry of Hari! Hari! which he had taught them, the Bráhmans had not a word more to say.

After this Sañkar went about establishing Shostros in different places, and wherever he halted one of these institutions sprung up. Near his own village he founded the Bordúär Shostro the present head priest of which is descended from him through his granddaughter, for though he left sons they had no male issue. In the autumn of his life he again visited Jaggannáth and then it was he had an interview with Chaitanya. He returned from this pilgrimage and recommenced his religious teaching with a more comprehensive library and a greater

store of knowledge, and resigning his mantle to Mádhav finished his career in Cooch Behar in the one hundred and fourth year of his age.

Sañkar and Mádhav between them translated into Asamese the Bhágavat, Rámáyana, Námamálá, and other Granthas. They taught their disciples choruses of spiritual songs and several hymns from a work called the Kírttan Grantha. They gave instruction on the names and attributes of God from the books called the Námaghosa, Gunamálá, Lilámálá, &c. and compiled or translated. I do not know which, the Bhakti Ratnábali, selections from the Bhágavat and the Purans.

The doctrines taught by these divines appear clearly the same as those ascribed to Chaitanya, and perhaps the most essential difference between the Mahápurushyas and the Vaishnavas of Bengal is that the former more rigidly observe and preserve in greater purity what they have received.

They instructed their disciples to acknowledge the existence of only one God, Vishnu the supreme, and prohibited their engaging in the worship of any other deity. They do not ignore the existence of the rival or minor gods of the Hindu Pantheon, but consider that in adoring Vishnu they obtain the favor of them all. They were instructed to acknowledge all the Avatars of Vishnu, but were to regard his appearance as Krishna as the manifestation of most importance to mortals, and to seek salvation by the repetition of 'his name and contemplation of his attributes. Amongst his other titles he was to be acknowledged as Rádhá Vallabha, or lord of Radha, but Rádhá was to be regarded as inseparably connected with this incarnation of the God, not as a distinct object of worship. In regard to a future state, the doctrines, if I am correctly informed of them, are simple enough. Elevation to Vaikant'ha, the heaven of Vishnu, as the reward of the virtuous, an eternity of 'Narak' hell, as the lot of the wicked.

Those amongst them who were "Grihis," laymen, were permitted to worship the images of Vishnu and Krishna in the form of the Sálagram but all other idol worship was interdicted, and though images of Krishna, Ráma, &c. are set up in some of the places of worship belonging to the Mahápurushyas, no adoration is paid to them except by Bráhmans. To the Sálagram and image of Krishna, offerings of uncooked food are, however, made by the Pujári, a Bráhman, in the name and in behalf of the community. The 'Udásins' are absolutely inter-

dicted all image worship, even of the Sálagram, and the reason assigned for this distinction between them and the laity is that, images or symbols of the deity on which to concentrate the ideas, are required by men whose minds are distracted by family cares and by indulgence in worldly enjoyments, but not by those who have withdrawn themselves from both, and who, if they act up to their vocation, spend the greater portion of their time in holy meditation.

The doctrines of Chaitanya obliterated the distinctions of caste. In all probability those originally promulgated by Sañkar had a like tendency; but at present though the Mahápurushyas have not that reverence for it that is entertained and arrogated by other Hindus, and have more intercourse with each other irrespective of caste than is usual amongst the 'twice-born,' yet the distinction is not altogether effaced, and the Mahápurushyas will not eat *cooked food* from the hands of a brother whose blood is not as pure as their own.

Hindus of all castes are admitted into the fraternity, and once admitted are, with the exception above noticed, associated with on equal terms by all the brethren, and there is nothing more remarkable about this sect than the firmness with which this bond of fraternity is maintained, supporting each other through evil report and good report, bravely and generously. One of the most highly respected of the Udásins is by caste a distiller of spirits. Amongst ordinary Hindus it would be considered degrading to men of caste to associate with such an individual, but now, as a Mahápurushya and a Udásin of acknowledged holiness, his origin is considered no disgrace to him.

Actual privacy at meals, such as is enjoined by some of the Vaishnava divines, the Mahápurushyas are not obliged to conform to. It is usual with this sect when a number get together, to form a mess, the man of the purest caste amongst them cooks for all, and they eat sitting together in one enclosure but not from the same dish. This uncivilized practice of eastern nations they regard with disgust and every man has his own plate to eat off. Though a social fraternity in their own community is thus encouraged, they are obliged to be extremely circumspect in their intercourse with all other sects, who are to them as gentiles. Purification by bathing and change of raiment is necessary before every meal and previous to entering their places of worship, as they cannot transact the affairs of every day life without coming into contact with gentiles, and all such contact pollutes.

Saṅkar particularly warned his followers against the commission of the following crimes, which from their being particularized whilst others of equal or greater importance are omitted, were doubtless those that in the days of his admonitions were most prevalent—adultery, theft, lying, pulling each other's hair, (!) or any violence to the person of another. He also placed his interdict on the use of intoxicating drugs, which is considered to extend even to the use of tobacco, and, in addition to what is abstained from by all orthodox Hindus, he prohibited his disciples from eating or even keeping ducks, pigeons, and goats. Some of these prohibitions are not now much attended to.

This sect of Vaishnavas make nine marks with the chandan or powder of sandal-wood on the forehead, the bridge of the nose, the ears, breast, and arms. As they make each mark they repeat some name but further than this, the rationale of the marking they will not disclose. Perhaps there is one mark for each of the *accomplished* incarnations of Vishnu, or it may be, one *for each* of the nine Bidhis or modes of acquiring knowledge.

During the life-time of Saṅkar all the Vaishnavas acknowledged him, and him only, as their spiritual head. On his death Mádhab succeeded to this position amongst the Mahápurushyas, but the first Shusturiah or Adhikári of the Borpetah Shostro was a Udásin Bhakat whose name was Mathurá Dása, but who was generally called and is now spoken of as "Burá Átá." He was selected for the office, and installed in it by Mádhab. Mathurá Dása before his death directed the Bhakats in conjunction with the Mahants,* or heads of the subordinate Shostros, to select a successor from the Bráhmaṇ family of Ráma Ráma Guru, the learned pundit who studied with Saṅkar, a successor was chosen in accordance with his wishes and since then the vacancies in the office of Adhikári have always been filled by the descendants of this Bráhmaṇ. Some assert that such was the injunction of the last Sudra Shusturiah, others contend that the Bhakats are not bound to select from any particular family, but had there been no restriction on their choice, it is not likely that the succession would have so long continued in this one. There have been many sharply contested elec-

* There are four families of these Mahants, all Sudras, one descended from the Ráma Dása who married Mádhab's sister, the other three from favorite disciples and fellow-labourers of the two Mahápurushyas. They signify their ratification of the Bhakats' selection by presenting the Shusturiah elect with the sacred "Málá."

tions, when the Bhakats were divided in opinion, but on no occasion were the nominees of either party selected from any other family.*

The Adhikári is assisted by a deputy called the Desha Adhikári and there are several other office-bearers for the lay and for the spiritual duties.

With exception to certain fees allotted to the Adhikári, all offerings received for religious duties, presents from disciples, fees of admission from proselytes, fees for re-admission to caste and the like are deposited in the Shostro treasury, and credited in the Shostro accounts by the accountant, and no disbursement can be made except by order of the Adhikári with the assent of the Bhakats, or a portion of them forming a sort of committee. The treasury is said to be very rich. The value of gold and silver utensils and ornaments together with the cash in the store-house is estimated at 60,000 Rupees. The annual receipts may average four or five thousand and the disbursements about three thousand. The chief items of expenditure being ~~the~~ the subsistence of poor travellers, for whose benefit an establishment of wood-cutters, potters and fishermen is kept up, and the expense of feasting at the great annual festivals all visitors who avail themselves of the hospitality of the Shostro.

The half rent paid to Government for the Dharmmottar lands attached to the temple is also paid from the general fund, nothing on this account being taken from the Bhakats who occupy the land.

For adjudication in disputes brought before the head of the institution, for assessing the amount of fine to be levied from an outcast for re-admission to caste, and for other matters requiring consideration, the Adhikári is assisted by a council which usually consists of two or more members of the family of the "Páthak" (reader of a commentary of the Bhágavat) and of the reader of the Bhagavat in Sanskrit, a Bráhman, or one of the family of the "Rajmidhi" who is the man of business of the Shostro in all temporal affairs. These councils are held in a house adjoining the "Námaghar."

Any individual wishing to become a Bhakat or disciple must present to the Shostro an offering of oil, cloths, and a sum of money according to his means. The Adhikári or in his absence the Desha Adhikári then teaches him the Mantra or initiating incantation, upon receiving which he must fee his instructor, and as far as I have learnt,

* This Ráma Ráma Guru was thus the Aaron of the sect, the progenitor of a family of Levites from whom alone the high priests can be chosen.

these are the only fees the Adhikari can claim, though he also receives presents from disciples who visit him after a long absence.

I have not been able to ascertain in what words the mystic Mantra is given. It is an inviolable secret.

It only remains for me to notice the services daily performed in the Shostro. Sañkar and Mádhab taught their followers that of the nine modes by which knowledge was acquired (“the nobo víd”) the most important were “hearing,” “singing and remembering,” and it is with reference to these, that the following ritual has been established.

1st. The morning service appropriately commences with the songs which the Gopis were accustomed to sing to awaken Krishna.

2nd. This is followed by spiritual songs accompanied by the clapping of hands and striking of cymbals.

3rd. The officiating Bráhman reads a portion of the Bhágavat in Sanskrita.

4th. A portion of the commentaries on the above in Asamese is read by one of the Bhakats.

In the afternoon service.

1st. The commentary of the Bhágavat is read.

2nd. The congregation sing and clap their hands and strike the cymbals.

3rd. The Bhágavat in Sanskrit is read.

The third service is held in the evening, at dusk, by candlelight, at which, 1st, a portion of the “Gunamálá,”

2nd. Portions of the “Lilá málá,” and

3rd. Parts of the “Bhotima” are read.

4th. Singing accompanied with cymbals and other musical instruments.

5th. Singing accompanied with the clapping of hands only.

6th. A portion of the commentaries on the Bhágavat or a part of the Asamese translation of the Rámáyana is read. These books are read regularly through till finished, and then recommenced.

At the conclusion of each of these services the name of Krishna is slowly repeated three or four times by the Bhakat who officiates, in a deep, solemn and impressive tone of voice. The whole congregation repeat it after him with equal solemnity, all with their heads reverently bent down till the forehead touches the ground ; it is echoed by those in the verandah and taken up by such as may be within hearing out-

side, who all prostrate themselves as they repeat it, and thus it is continued till it is heard but as a faint moan and dies away in the distance. None that have been present could fail to be struck with this very impressive mode of concluding the service.

The superiority of the form and mode of the devotional exercises above described, contrasted with the ordinary temple worship of the Hindus, is apparent enough to attract and retain votaries. Instead of a small shrine into which none but the officiating Bráhmán enters and from which no instruction to the crowd outside is even attempted, a large building capable of affording accommodation to thousands is devoted to the purposes of praises of the deity, congregational singing and moral instruction, and to keep up the spirit of the sect as well as to afford them ensamples of holy living, the actions, precepts and chief incidents in the lives of their founders are constantly brought to their recollection.

Amongst the peculiarities of ~~the~~ this institution is the almost communistic nature of their system of Government. In other Asam Shostros the resident Bhakats were regarded as little better than slaves of the high priest for the time being, whether the latter office was hereditary or otherwise held, but the Bhakats of Borpetah have all a proprietary right in their Shostro and a share in its Government. Acknowledging the Adhikári as their "Guru," they implicitly submit to his guidance in spiritual affairs but in temporal matters he can take no step without their voice. There are indeed two parties amongst them which we may designate "high and low church," the one admitting, the other disavowing his claim to infallibility, but these are delicate questions with which I will not further meddle.

The institution is less richly endowed by the former rulers of the country than many others of far less importance, but they hold a grant of land conferred on them by Seeb Sing, one of the Ahom rájás of Ásám, dated Saka 1657, corresponding with A. D. 1735, in which the rights of the Bhakats are peculiarly recognized. The lands, about 397 acres, being granted to 297 individuals by name who were the heads of the families of the resident Bhakats then existing and to the Shusturiah and Desha Shusturiah and Pujári for the time being the space for whose names is left blank. I am told that they have more ancient grants for a smaller quantity of land from two of the Delhi Bádsháhs but these I have not seen.

A Comparative Essay on the Ancient Geography of India.

(Continued from page 272)

From *Cach'hara* El Edrisi made *Ghazera*, and probably *Cosair*.* The names of *Wair*, or *Eirus* are unknown now, at least to the pilgrims, who travel that way. Having doubled the Cape, Nearchus came into a large and commodious harbour, protected by a small island, called by him *Bibacta*, and by Pliny, *Bibaga*; not more than three hundred yards from the shore. The distance from *Crocala* is omitted by Arrian; but Pliny reckons twelve Roman, or ten and a half British miles. *Bibaga* is perhaps a corruption from *Débi-bága*, the garden of *Sitá-devi*, or simply *Debi*, who has several in that part of the country. It is called *Byblus*, in some MSS. *Babulona*, by Philostratus, in his life of Apollonius; perhaps from *Bábul*, the Acacia tree, which abounds all along that coast. This small island, being so close in shore, has not been noticed by late navigators, and possibly it no longer exists as an island. I suppose that this harbour, denominated after Alexander, was at the mouth of the dry river, which I mentioned before.

This narrow passage of 300 yards only, between the mainland and the island, and even the harbour itself at the mouth of a river, is really a *Khári*, or *Khárijuna*, or *Khárizána*, and answers of course to the *Rhixana*, or *Rhizana*, both of Marcian, and of Ptolemy. Nine miles Roman, or about eight British, from it there was, according to Pliny, another island called *Toralliba*, which in Hindi signifies the island of *Liba*; and is obviously Chilney, called by Ptolemy *Codané*, probably for *Colané*; for there is very little difference between the letters D, and L in Greek; and of course they are often put the one for the other. Besides, this island is opposite to the country called *Cola*, and also *Colwán* by El Edrisi. Ptolemy considered the island of *Liba*, as different from *Colané*, which, in that case, must have disappeared, which is not likely. *Liba* or *Labe* is the name of the goddess *Chandichá*, or the lustful goddess, as we have seen before. *Tora-Liba* is simply called *Tora* by El Edrisi; and in Hindi *Tora*, or *Tara* signify an island. From this place Nearchus put to sea again, and

* See El Edrisi, pp. 56 and 57.

after a course of four miles, stopped under the shelter of a small island close to the shore, and called *Domai*. There was no water; but it was found of a good quality at the distance of about a mile, probably in the dry bed of the canal, or *Nala* of Hanumán. This little island seems to be noticed in some late surveys, and is called *Domail* by El Edrisi; who says, that there was on it a small town called *Cas-Cahar*, which, it is more probable, was on the continent; and the inhabitants of it, are called *Damæi* by Stephanus of Byzantium.

Cahar is, for *Cahir*, *Cahirá* generally pronounced *Cair*. Several places called *Cahira*, in the countries bordering upon the Indus, are mentioned in the *Ayin Acberi*. I suppose the true reading to be *Kiz-Cahir*, or *Cair* in *Kiz*, or *Gedrosia*. *Cáraichi* was also called *Cair*, and probably by way of contradistinction *Caer-cede*, *Caer-shede*, for *Cair-Sind*. For the Portuguese in composition sometimes wrote *Cind*, *Cend* and even *Gind* for *Sind*. Hence we find it asserted, that the Indus was also called *Karshed*. Small settlements have occasionally been attempted on that coast, as I have been told; but they were soon after forsaken, as *Hingula-Deví* is averse to them. The country was called *Saṅgada*, a denomination now seemingly unknown in that country. It is perhaps from the Sanskrit, and Hindi *Sankhadá*, implying a country abounding with shells, which is really the case.

El Edrisi says, that from *Dabil*, at the entrance of India, and of course *Cáraichi*, to Cape *Moná*, there are six miles (the numbers are obviously corrupted) hence to *Coli* six more. *Coli* is *Domail*. *Cola*, or *Cali* is a creek. From *Domai*, after a course of nineteen miles, Nearchus reached a place called *Saranga*, probably from Rámachandra's seat—*Zerocá*, or in Persian *Seirunga*; which is near it, and a little further, were the rocks called *Sacala*. These are not noticed by pilgrims, probably because there are no legends attached to them: perhaps they are low rocks, forming a ledge, stretching out far into the sea. This was probably the reason, why Nearchus was deterred from going round them; and as there was a passage through them, though very narrow, he preferred to go that way. *Sugala* in Sanskrit signifies the *fair way* passage: in Hindi *Su-Cali*, or *Col* signifies the fair, or safe creek; also a safe narrow passage. In English Gully or Gully-hole, in French Goulet, from the Latin *Gula* the throat, *Galá* in Hindi is the throat and *Galí*, a narrow pass or lane.

From this place Nearchus went to *Morontobara*, which, he says, signifies the harbour of women. *Morontobara* is from the Persian *Moorut-bahr*, the bay, or creek of women or of the woman; and is a translation of its Hindi name. There, according to tradition, reigned a woman in former times; and that woman is *Hingulá-Deví*, the mother of mankind. This harbour no longer exists, as I have shewn before: but the creek, through which Nearchus went into the inner bay of the *Arbis* still remains: though no longer navigable. Then Nearchus with the fleet went to the inner mouth of the river. There was a commodious harbour with a large island in front: the water was bad, but by going up the river about 40 stadia, it was found of good quality. This is the harbour of *Argenus*, mentioned by Pliny: and from this place Nearchus crossed the bay, and anchored at *Pagala*, opposite to *Sónemeyání*; and there is the outward mouth of the *Arbis*. This is also the mouth of the same river as noticed by Ptolemy, and Marcian. *Arigenus* ~~Bay~~ call *Rhaprava*: then comes the harbour of women, *Coiumba*, the well of our mother, *Rizana*, and at some distance from it, the boundary of Gedrosia; which being well defined by nature, remains invariably the same, on the banks of the Indian *Háb*, to the eastward of the range of mountains, which ends at Cape *Monz*, and is close to it. *Rhaprava* is from the Sanskrit and Hindi *Ráma-praváh*, the grand canal of *Ráma*, of which there are two, one to the east, and the other to the west of the *Arbis*; and where they spring from the parent stream, above the bay there was the harbour and village of *Argenus*, thus called, because it was on the western side of the river, in the district of *Haur-Cánán*, or *Haur Caián*; and which, probably from that circumstance, was called *Rám-praváh*. *Ráma-Chaudra* excavated only part of that canal himself; but as the rest was done by his army, and by his order, the whole very properly is denominated the canal of *Ráma*. *Coi-Ambá*, signifies the well of our mother, to the south of *Morontubara*, as I observed before.

The distances both in Ptolemy and Marcian, are excessive beyond measure, and stand thus in Ptolemy. From *Pagala* or outer mouth, to the inner one of the *Arbis*, at *Rhaprava*, 60 geographical miles: to the harbour of women, as many; and to *Coiumba*, 60 also: to *Rhizana*, 40: to the boundary, 25. In Marcian, we have from the first to the second place 550 stadia: 500 to the next: 400 to

Coliimba: the two others are omitted: and, in both authors, the respective distances are not even proportionable. From the inner mouth of the Arbis, to the boundary either at Cape *Moná*, or at the Indian *Háb*, the distance is, according to Ptolemy, 185 Geographical miles, whilst it is really no more than 60 or 67 British miles. *Rizana*, I suppose to be a corruption, from *Kharí* and *Kharíjan*, a creek, and in Persian *Khalij* and *Khaljun* or *Khalzun*: and in the Delta, there is a place called *Kharizana*, according to the Ayin Acheri; and in some MSS. *C'harijuna*. These distances must be considerably reduced, and *Rhizana* will be *Alexander's* harbour, which being at the mouth of a river, though dry now, is really a *Kharí*, or *Kharizana*. Besides the narrow channel, between the island and the main, is also a *Charizana*. The *Arbis* or *Arabis* is called *Carbis* by Æthicus: and to this day it is denominated *Háb* and *Cáb*. It is the Cophes of Pliny, as will appear hereafter. El Edrisi mentions the country of *Araba*, and Father Monserrat says, that the river was called in his time *Arba*, and also *Háb*; for he takes particular notice of the Indian *Ab*, or *Háb*.

From *Pagala*, Nearchus went to *Cabáná*, called *Cawáná* by Ptolemy; from the Sanskrit *Cupáná*, and the Hindi *Coowanah*, or the wells. These are the wells of *Aerah*. The next station was at *Cocala*, from its being near the *Háb* or *Colcalá*, or the river of noises; and several streams in India are, from that circumstance, called *Culculya* or *Curculya*. Next comes the river *Tomerus*, called *Tuberus* by Pliny; and now the river *Haur*, *Gaur*, and *Aghaur*. *Tomerus* is from the Sanskrit *Támra*, one of the names of *Hingulá-deri*; and all names, implying a copper colour or *Támra* are applicable to her. The Hindus, however, were not satisfied with this etymology: but they suppose that every thing there was formerly of copper, or *Támra*: but afterwards all the copper was, as usual at this place, turned into stones, still called *Támrá* from their colour. The country to the east of the river *Haur*, or *Támrá*, is *Tamrá*, as far as the *Háb*, and belongs particularly to *Hingulá*, or *Támrá-devi*, more generally called in Sanskrit *Camalá*: hence the country, and town of *Camalá*: and the country to the east of the *Háb*, is *Swarnaca*, or of gold. Philostratus in his life of Apollonius has preserved some curious fragments of antiquity.

Apollonius after leaving the island of *Byblus*, comes to the district of *Pegada*, in the country of the *Oritæ*; where the stones, and the sand are copper, and it is called the golden country from the immense returns in gold from the sale of their copper. *Sóne-meyání*, and its district is so called from its golden fisheries, from the large returns in gold, from the sale of the fish. Unfortunately there is no copper in that country: but it was so supposed, and it is enough for our purpose. *Pegada* is for *Pegala*; and Philostratus mentions next a sea-town called *Stobera*, for *Tobera* or *Tomerá*, and the dress of the inhabitants consisted of the skins of the larger kind of fish; as related by Nearchus, of those who lived at the mouth of the river *Tomerus*.

Cape *Múdán* comes next, commonly called *Morán*, and sometimes *Málán*. It is the *Malana* of Nearchus and it is the mount *Maleus* of Pliny from the Greek *Maleos*, and *Maleon* in the country of the *Oritæ*, or those of *Haur*. There, says he, in summer the shadows fall to the south, and in winter to the north. ~~This~~ is true in part only; three or four weeks before, and as many after the summer solstice, the shadows fall to the south: but all the rest of the year, they fall toward the north. Nearchus mentions this circumstance; but he does not say, that it was observed at Cape *Malana*: and this could not be the case, as the season was too far advanced. Nearchus in his journal, going to take leave of India, which terminates at Cape *Malana*, takes notice of a phenomenon which he observed once as he was launching out a great way into the sea; when the shadows in the fore and afternoon fell to the south: but at noon there was no shadow at all. Nearchus, since he left the Indus, kept always close to the shore; and the above observation took place, whilst in company with Alexander, who did really stretch out into the sea from the western mouth of the Indus, about the summer solstice. Though the place, where it was observed at sea, and Cape *Malana*, are without the tropics, yet this phenomenon takes place there, as well as at Benares in the same latitude nearly with Cape *Malan*. As horizontal dials are very inconvenient during the hot winds, I made a vertical one at that place about nineteen years ago, for Mr. Duncan, now Governor of Bombay: and being without the tropics, I thought myself safe. It was in the winter; but to my great astonishment, the dial was of no use, about the summer solstice. At first, in the latter end of May, the remotest hour lines

both in the morning, and in the evening, ceased to be illuminated : a few days after, the next lines were affected in the same manner : and so on gradually, till a few days before, and also after the solstice, when the southern face of the dial no longer enjoyed the rays of the sun : but at noon there was no shadow, as remarked by Nearchus.

The same phenomenon takes place, with a wall placed due east and west ; and this unforeseen circumstance subjected me, and my unfortunate dial, to the innocent railleries of my friends. That, this phenomenon takes place at Cape Múdán, and at the mouths of the Indus, though without tropics, I have proved ; and that it was observed by Nearchus, there can be no doubt. Truth compels me, as well as the learned Dr. Vincent, to confess, that the language is too express, to admit of a general interpretation ; for it is Nearchus speaking of what he had seen. The observation then took place, either eight or ten days before, or as many after the 21st of June, when the phenomenon is sufficiently obvious : for before and after, it is not so : being just perceivable in the morning and evening. This, being once admitted, proves that Alexander was at the mouth of the Indus, in the latter part of the month of June.

Múdán is a derivative form from the Sanskrit *Múdha*, a head, a headland ; *S'irán*, from *S'ira* is used in the same sense : but the Hindus suppose, that it is so called from the *Munda* or *Múdha* the head of Ganes'a, which fell there.

The Hindus consider Hīngláj, and Cape Múdán, as the boundary of India, and of course I shall not go beyond it.

Deities of the first rank have generally small districts, or portions of land dedicated to them, and in which they are supposed to reside, at least occasionally. These are styled *vana*, grove or forest ; though there should be no trees in it, at least obvious to the sight. These are also called *Vática*, gardens or garden houses ; and in the spoken dialects, *Bág*. The same deity has many not only in India, but all over the world ; and they place in every one of them, another embodied form, or rather another self, if I may be allowed the expression.

The arrangement of the different parts in these *Váticas*, is in general the same, so that, not only the same legend, but also the same description, will serve for every one of them. There are however some exceptions, arising from local circumstances, which are generally over-

looked, and occasion curious mistakes, and we have a striking instance of this in the present case. The place of *Hīṅgulā-devī* is not described particularly in any of the Purāṇas, either under the name of *Strirājyam*, or of *Mahā-Cāla-van*; for *Loca-mātā* is *Mahā-Cālī*, and her consort is *Mahā-Cāla*. *Mahā-Cāla-van*, or simply *Cāla-van*, is called *Colwan* by El Edrisi, and Ebn Haucal *Kelwan*. Yet the description of *Strirājyam* in the peninsula, is that of *Hīṅglāj*; for the author has introduced *Daldala* and *Jala-bhumis*, *quagmires* and *quicksands*; which are inadmissible on the summit of the Gaunts. The *Cāla-van* of *Hīṅglāj* is acknowledged to be the first, and original one. The next to it, is that in which *Ujjain* is situated: and this is described in the *Scanda-purāṇa*, in the Section of *Avanti*: but the author has been more cautious; for instead of the round stones or *gallets* of *Hīṅglāj*, which are not found about *Ujjain*, he has substituted the fruit of the *Bilva* tree, which in size and colour looks very much like them; and also is so hard, that a shower of ~~stones~~ would effectually repress the boldest assailants. There we are told, that *S'iva* being partial to *Mahā-Cāla-van*, called *Colwan* by El Edrisi and Ebn Haucal, or the forests in which he and his consort lived in their primitive forms, as ancestors of mankind, in the characters of *Mahā-Cāla*, and *Mahā-Cālī*, directed four forms of his to watch it constantly. To the east *Bilvā'swara* was placed, or the lord of the stones of the size and in the shape of the fruit of the *Bilva* tree. This is the *Angākeryā-Bhairava Mahā-deva* of our pilgrims. To the north was *Darddures'wara*, or the lord in the shape of a *Bull-frog*: he is the *Tāngār*, or *Jānghār-Bhairava-Mahā-deva*, I mentioned before. To the west is *Pīṅgālē'swara*, the lord and consort of *Pīṅgālē'swarī*, or *Hīṅgulā-devī*, and to the south is the fourth form, called *Cāyāvarohānē'swara*. The seat of the lord *Darddura*, is among the mountains so called after him, and often mentioned in the lists of countries in the Purāṇas, and placed there in the west. His consort *Chan'dicā*, is also with propriety styled *Darddurī*, or *Darddure'swarī*, our *LADY* in the shape of a *Bull-frog*. *Darddura* is a frog, a toad, but here it is understood of the bull kind, on account of its vociferation and loud noise. In the other *Strirājyam*, it is *Hanumān*, the monkey, who produces those tremendous sounds, which either kill people instantly, or drive them to madness.

The seat of *Cāyāvarohana* is Cape *Mund*, and leaving out *Cāya*,

which signifies the *body*, remains *Avarohana*, a compound from *Roha*, from which comes *aroha*, *avaroha*, with one or two particles serving to enhance its meaning. We have also *rohan*, and *rohaca*; and as the country above Cape *Mun'd*, is called *Rahun* by El Edrisi, and *Rahúk* by Ebn Haucal, I believe that *Rohan* and *Rohaca* are the true and original names; and the rest to be an idle superstructure of the Pauránics. Be this as it may; *Arohán* is interpreted *dirghatwam*, and *Samuch'chraya*, a ridge, projection, long and high; and it seems that the lord *Cáyávarohana* had stretched out his own body as an obstacle to all intruders into this holy land.

This Cape is called *Wair* by El Edrisi, and *Howair* by one of Renaudot's travellers, from the Sanskrit *Vaihar* or *Waihar*: and in the lists of countries both in the *Váyu*, and *Brahmán'da Purá'nas*, we read among the inferior mountains *Vaihár*, *Darddura*, *Coláhala*, and in others *Darddura*, and *Cack'hara*. The three last are well known to belong to that country, and are even noticed by El Edrisi, along with the mountain of *Wair*, *Dordur*, *Cassair*, and *Ghazerá*, *Colu-van*, or *Coloun* which is part of the country of *Hala*. This induces me to suppose that *Vaihár* is the same with *Wair*. *Vihár-mun'da*, or *Vihar-mu'dán*, signify in Sanskrit the Fair-head, or Cape, and in a derivative form *Waihár*, any thing fair. Nearchus calls it *Eiros*, probably from *Wair* fair, a vulgar corruption from *Waihár*.

El Edrisi has placed three sets of these mountains, at three different places: but those mentioned in the beginning of the seventh chapter of the second climate belong to this place, which, I believe, was the original one.* The *Darddura* mountains are also called *Daradará*, or *Darddara* by the Pauránics, and, I believe, this to be the true name. *Daradara* signifies Cinnabar, and also very small pebbles, an inferior sort of gems.

The latter are found in immense quantities in the mountains bordering upon the sea, and to the west of the Indus. El Edrisi, and one of Renaudot's travellers call these mountains *Dardur*, and the former has also others of that name near the Persian Gulf, where Cinnabar or minium was to be found near the river Hytanis, according to Onesicritus, as cited by Strabo. Mountains of that name, are also placed near the entrance of the Red Sea. The Indian Cinnabar was, accord-

* El Edrisi, pp. 51, 56 and 57.

ing to Arrian procured from the island of Socotora; and was supposed to be the indurated juice of a tree by the Arabs, in whose language Derder is the name of a tree, supposed to be either the Ash, or the Elm.

The pebbles I mentioned before, are of the size of the larger sort of millet, called *Jawár*, and have the same colour with all its variations, such as a light red, and a pale yellow with a small addition of red or faint brass colour: hence they are termed *Támra*, brass or copper: and Philostratus says, that near the Tomerus the stones and the very sand were brass. In their rough state in the quarry, they look exactly like corn coarsely ground, in Hindi *Dardara*, or *Grit* in English. For this reason, they are supposed by pilgrims, to be the remains of *Bhaváni-Deví's* cookery, turned into stones. After being rubbed together, for a considerable time, the outward coat disappears; and then they assume a fine polish. They are afterwards perforated at *Nagar-Tathá*, or Sháh-bandar; and sold to pilgrims one thousand for a rupee, who make chaplets of them. There is a smaller sort of them of the size of that kind of millet called *Bájará*, or *Bázzara*: but these are rejected. *Bázzará* was called *Bosmorus* by the Greeks; who wrote it at first $\text{BO}\Sigma\Sigma\text{OPO}\Sigma$, and probably through the inaccuracy of transcribers, it was afterwards written $\text{BO}\Sigma\text{MOPO}\Sigma$: thus the second Σ , being inverted, became the letter M.

The author of the Scanda-purána has introduced also the 84 *lingas* of Híngláj, which is a contraction for 84,000, the number of regenerations, through the animal, and vegetable kingdoms. *Híngulá-deví*, or *Piṅgale'swarí* is mentioned in the Scanda-purána, in the Revá-khaṇḍa. There the author, relating the different forms of 'Deví, and their *Stháns*, says *Payoshṭ'yám-Piṅgale'swarí*; the place of this goddess is *payoshṭ'yám*, in or near the waters of the sea. In her character of *Chandichá*, or *Dardduri*, she is also styled *Salurá*, or *Salurí*, synonymous with the latter; and both signifying the goddess in the shape of a *Bull-frog*. She resided in an island called *Selira*, or *Selera* for *Salurá*, according to Philostratus, who places it near *Balara*, or rather *Badara*. Nearchus calls it *Nosala*, from the Sanskrit *Násíla*, or the place of ruin and destruction. At some distance, but further off at sea, was another island called *Polla* or *Palla*, which is not now to be found, and as it has not disappeared, it probably never existed.

Ptolemy has increased the number of these islands to four: but the three, which he calls *Asthœa*, *Liba*, and *Carmina* are one only, now called *Ashtola*. These two islands, with a third called *Codané*, for *Colané*, by Ptolemy, and *Toralliba* by Pliny, or in Hindi the island of *Libá*, were the place of abode of queen *Labá*, the goddess *Libido*, or *Lubedo*. Of this third island, Nearchus takes no notice; though he must have seen it often, as he remained at Alexander's harbour, four and twenty days. It was, I believe at this last, that the ship manned with people from Egypt, though probably not of a true Egyptian origin, gave him the slip. They were probably tired of this navigation, and having a good ship, well manned, availed themselves of the superstitious notions of the country, concerning this island; and made their escape. What induces me to suppose, that this happened at this island, is that this transaction, as well as the search of Nearchus, required a few days; and it does not appear, that he made any stay at any of the places near *Ashtola*.

It is then highly probable, that Nearchus willing to preserve the connexion of the narrative of his naval expedition, rejected uncommon occurrences, to the end of one of the three natural divisions of his journal; the shores of India, the coast of the *Ichthyophagi*, and that of Carmania and Persia. Having conducted his fleet all along the coast of the *Ichthyophagi*, and just before he enters the gulf of Persia, he relates the adventure of the whales, near *Cuiza*; and that of the island, the abode of a Nereid. Philostratus, in conformity with Ptolemy, places it near *Badara*: but Marcian carries it a little farther near *Alambateir*. Neither time, nor a change of religion have obliterated these superstitious notions: for Capt. Blair, as cited by Dr. Vincent, writes "We were warned by the natives at Passence, that it would be dangerous, to approach the island of *Ashtola*, as it was *enchanted*, and that a ship had been turned into a rock. . . . and we saw the rock alluded to, which at a distance has the appearance of a ship under sail."* The same story is related of a rock near Hingláj, as I observed before. *Nosala*, or in Sanskrit *Násúla*, signifies the place of ruin and destruction: for in Cosás we read, *Nása* ruin is *mrityu*, death; *dwansa*, dashing against stones; *adar'sana*, disappearance; *paláyana*, from *pala*, rout, flight; and *pala* is the root of *palla*, far off; and

* Voyage of Nearchus, Vol. 1st, p. 299, edition of 1807.

this is probably the true etymology of the name of the second island, called *Palla*, *Polla*, both by Ptolemy, and Marcian; and which probably never existed. Fictitious islands are sometimes introduced, such as Brasil, near the coast of Ireland, the inaccessible one near the Canaries, which seemed to fly off *pala*, before you, and then suddenly disappeared. Pliny, on the authority of king Juba, mentions such an island in the Red Sea, called Topazion; and which often eluded the pursuits of navigators.

Pliny takes notice of the island of *Nosala*, without, however, mentioning its name. Being fond of quaint expressions, he calls it the *reddish* bed of the Nymphs; and probably, there was in the Greek original *Erythra*, or *Erythras*; and this passage should be read thus. This island is the night resting place of the nymph *Erythrá*, in which men and living beings disappear. This is really conformable to the Hindi notions; and the name of this nymph, or goddess, is *Haridrâ*, synonymous with *Támrâ*, *Hĩngulâ*, and *Pĩngalâ*; and from it the Greeks made *Erythraios*, or of a purple colour, the shades, and tinges of which were as various among them, as with the Hindus. Pliny has preserved to us some curious fragments, relating to this country; the names are often strangely disfigured, and there are occasionally some transpositions.

He mentions a river called *Manais*; then a tribe called *Augutturi*, who probably lived about Guttar Bay; then comes the river *Borru*, with a tribe called *Urbi*; the river *Ponamus*, near the confines of the Pandæ; the *Caberon*, with a harbour at its mouth in the country of the *Soræ*. I suspect here a transposition; and I shall attempt to correct the whole in the following manner.

The river *Manais* answers to *Tal-Mena*: *Augutturi* is *Guttur*: the river *Balomus*, near the confines of the Obandos; the river *Arubâ*, with the *Arubi* tribe, near Cape *Arubah*: the river *Tuberus* or *Tomerus*, in the country of the *Oritæ*, or of *Ora*.

The Geography of this country is so little known, that we cannot proceed, but with the utmost diffidence. The old maps of the Portuguese disagree; and transpositions are constantly to be met with. This seems to be a fatality, attending all surveys of that coast, not even excepting the most recent ones, from the Gulf of Cutch toward the west. The best map, in my opinion, is that of Jaó Texeira,

Geographer to the king of Portugal; which was published in the year 1649: and is to be found in Melch. Thevenot's collection of travels. It is unfortunately upon a small scale; and of course not sufficiently explicit. The river *Caorica* is the western branch of the *Háb*, more accurately delineated and placed in the map of these countries, inserted in Lindschot's travels. The next river is the *Camelo*, or *Haur*: then comes a river without name to the east of Cape *Arubáh*, which really exists according to our modern surveys. This Cape is styled there, the point of islands, and the bay to the west of it, the harbour of islands, with a river at the bottom of it. Between this and Cape Guadel, our author has placed three rivers, *Palamate*, or *Palamen*, *Calamete* or *Calamen*, and near Cape Guadel, the river of Noutagues, from a tribe of that name, called Naytagues by Manuel de Faria, and Noytagues or Noytag by Father Monserrat: and this river by both, is placed to the N. E. of Cape Guadel, not very far from it, and seemingly a little to the eastward of the eastern bay. I suspect a transposition with regard to the rivers *Calamen* and *Palamen*: we have ascertained the situation of the river of the *Noytagues*; and there is no doubt, but, that the *Calamen* or *Calama* river is the nearest to Cape *Arubáh*: the *Palamen* of course will fall in a little to the westward of Cape Passence; and will answer to the place called *Balonus* by Nearchus; and is probably the river *Ponamus* of Pliny, for *Polanus*. It was, says he, a navigable river on the confines of the Pandæ. This tribe is mentioned by Manuel de Faria, under the name of Abindos or Obandos and they were the friends and allies of the Noytags. In another place Monserrat either calls them, or a tribe of them, Heytag; and the pilot, whom Nearchus found at Mosarna in their country and who was called Hydrakes, was perhaps a Heytag. The additional R is no uncommon circumstance: thus instead of Teiz or Teasa, Lt. Porter has Tearsa.

I think the Pandæ, or Bandæ of Pliny, are nearer to the true pronunciation; and that the Portuguese were misled by the affinity with Abindos, a river to the east of Cape Mu'dán, which Monserrat calls in Latin *Ab Indorum rivus*, or the Indian *Háb*.

There is a tribe called *Urbi* by Pliny, upon the river *Borru*: but it is probable, that both the river and the tribe on its banks, went by the same name *Urbi*, *Arbah* and *Ambáh*. To the east of it was *Pasira*, a

place of some note, and whose inhabitants are called *Pariræ* by Pliny, for *Pasiræ* or *Pasirei*: and their borders extended to the river *Tuberus* or *Tomerus*, according to him.

The next place is *Condigrāma*, called to this day *Chandigrāma*, or the town of *Chandī-devī*; otherwise the fort of *Shabda-coti*. The river *Cophes* is the *Arbis*, being the principal river in the country of *Cuf*, *Cof*, or *Coph*; which is also, that of a powerful tribe in that country, mentioned by several eastern writers, as Ebn Haucal, &c. The source of this river is called *Habesan*, for *Hubé-sar* by El Edrisi* and *Khabsar* by Ebn Haucal, or the head of the *Háb* or *Kháb*. To the west of the Indus, and in the lower part of its course, and consequently close to the sea, Pliny mentions the tribe of the *Amatæ* so called, because they lived in the country of *Aimátá*, the mother of mankind; who rules over all that region; which is called in the *Purāṇas*, for that reason, *Strī-rājyam*, or the country of the woman; and this legend is much more ancient than the times of Alexander: for Nearchus says, that, according to tradition, a woman in former times, ruled all over that country. She has three principal forms: the first is of a white complexion, and is *Svétā-devī*, the daughter, and consort of *Brahmá*; and she is the mother of the gods and of mankind, and the sovereign queen of all living beings. In that character, she has a vast number of places all over the world, which she visits in rotation. Some places she is particularly fond of, as *Hīngláj*, which she visits every year during the cold weather. The day and hour is fixed, when all the pilgrims stark naked, rolling themselves upon the rough stony ground, call, as loud as they can, “*Ai-Mátá! Srī-mátá!* our blessed mother; *Devī-mátá!* our divine mother, do away with all our impurities.” Assuming another shape, she becomes the consort of every *Manu*; hence she is acknowledged by the Musalmans to be *Eve*; and they call her *Bibí-Nání*, our honoured lady and grandmother: and she is held in great veneration by them. The range of mountains west of the Indus, is called the mountains of *Bibí-Nání*. When our first parents were ejected out of paradise with the seducer, *Adam* fell into *Ceylon*; *Eve* at *Hīngláj*; and the Devil at *Cabul*. From her oven near *Hīngláj*, sprang the waters of the flood. Her name is *Brahmī-Sitá*, or simply *Sitá*. The second form is that of

* El Edrisi p. 134, Ebn Haucal, p. 210.

Hĩṅgulá, called also *Pĩṅgalá*, *Pĩṅgásá*, *Támrá* and *Haridrá*, implying a mixture of a reddish and yellow colour.

From her the river *Haur* is denominated *Támrá* or *Tomerus*; and from *Haridrá* comes in Greek *Erythros*, *Erithrá*, &c.; synonymous with *Phoenix*, *Punikeus*, &c. The third form is *Chandicá-deví*, the *Circe* of the Hindus: and she seems to be the Nereid of Nearchus; for like her, *Chandicá* is very licentious, and turns men into animals, plants and stones.

She is mentioned under the name of *Chandánaná*, in the only section remaining of *Jaimini's* *Mahá-Bhārat*; and her magical powers failed before the renowned *Arjuṇa*. She is also called *Pramilá* in another book, the name of which I do not now recollect. The place of *Chandicá* with the ten millions of noises, makes a considerable figure in the *Arabian Nights*. It was situated on the confines of India and Persia; and about twenty days march from the metropolis of the latter. The place where the old Derveish, or *Yogi* is entombed, is still shewn to pilgrims; when they go from *Sónemehyání* to *Hĩṅgláj*, round the bay of the *Háb*. It is at some distance toward the north from the place of noises. The old *Yogi*, the Hindus call the *Guru*, or guide of the pilgrims. As water is scarce there, the mother of mankind had given him a bottle of water, which never was to fail, as long as he performed acts of mercy and charity. His duty was to warn pilgrims of the danger, they would expose themselves to, if they attempted to go to the place of *Chandicá*; but if they persisted he was to give them the best advice. A young man once put himself under his care, and one day being thirsty and having no water he begged some of the old man; but was refused and died of thirst in his presence. The old man becoming thirsty soon after, had recourse to his bottle: but there was no water in it. He died soon of course, and pilgrims pour water on the spot where the young man was buried, and throw stones at the tomb of the *Guru* and curse him. Since his death nobody ever presumes to visit the place of *Chandicá*. In the third Volume of the *Arabian Nights*, *Chandicá* herself is introduced under the name of Queen *Labé*; and there she is represented in the same words nearly, with the Hindus, except that the unfortunate men, who fall into her hands, remain with her one month only instead of forty days. Prince Beder of Persia being on a visit to his uncle Saleh,

and his neighbour king Samandal, Samunder or Samudri, the Samorin on the Malabar Coast, was transformed into a Crauncha bird, and exiled to some island in that sea. There he was caught by a peasant, who carried him to some king on that coast, where he recovered his former shape. The king having heard his story sent him back to Persia in some of the vessels, which were going to sail for that country. A storm drove the ship on the inhospitable country of Queen *Labé*; and he alone escaped ashore. *Labé* implies covetousness and inordinate desires, from the Sanskrit verb *lubha*, in Hindi *lobhi*. From *lubha* comes the Latin *lubedo* and *libido*; and her name *Libá* seems to re-appear in that of an island, on that coast. *Ai-Mátá* is from the Sanskrit *Ainh-Mátá*, the name of Brahmí-Sitá, who, as I observed in another essay, is *Ecácsvara*: that is, her name consists of one letter, which is *I* long, and designates the female power of nature. This letter by mystics, is called the root, and *Ainh* its seed. Thus *Ainh-Mátá* signifies the woman emphatically; or our honoured lady and mother. Hence she is styled the *Woman* simply: at least it was so formerly. This was at first an honourable appellation; but Mahá-deva, as he was on a visit to her made use of it in such a questionable a manner, that the goddess grew angry, and kept him waiting for twelve years at her door; and there is a long, and fulsome legend about this incident. *I* and its seed *Ai*, or *Ainh* is perhaps the mystic *Ei* of Delphos, concerning which ancient philosophers have said much to little purpose. *Chan'dígrám* was the metropolis of *Strirájya*, in the spoken dialects *Istrirája*; from which circumstance, it is called *Asterusa*, or *Asterusia* by Euhemerus. It was, says he, one of the three towns destroyed by Uranus, or Árhán. This is a well known legend in India: and these three towns are styled *Tripúri*, or *Traipúri* under Tripurásura, who was Tri-Calingádhpati, and had a town in each Calinga. These were destroyed at once, by the unerring arrow of S'iva, who was standing in the district of Tipperah. One of these towns was to the eastward of the Ganges, the other near Amaracan'taca, and the third to the west of the Indus. But this subject I shall resume in my next essay on *Anu Gangam*.

The inhabitants of that coast were called Ichthyophagi or fish-eaters by the Greeks. By the Paurá'nics, they are styled Matsya-siras, and in Persian romances *Mahi ser* or *Ser-mahi*, Fish heads; a very appro-

priate symbol for a fisherman: being the compound hieroglyphic of fish and man. The legends, relating to *Râma-Chandra's* journey to Hinglâj, are not to be found in the *Purâ'nas*; though otherwise well known all over India, through the pilgrims, who visit Hinglâj from all parts of the country. It is the case with many others, which in general illustrate obscure passages in these books, and in many cases are in some measure a supplement to them. The legends existed before the *Purâ'nas*, and this immense compilation does not contain all that were current when they were written. Wishing, however, to connect the journey of *Râma chandra*, with his history from the *Purâ'nas*, I consulted several well-informed pilgrims on the subject: they were prepared and ready with an answer.

Râma having killed *Râvana*, who was a *Brâhman*, paid a visit to his spiritual guide *Vasishta*, who blamed him for it, as he would certainly be haunted by a fury till his crime was expiated; and for that purpose recommended him to go and worship the mother of mankind at Hinglâj. *Râmchandra* is called *Sultan Serwer* by *Musulmans*, and *Hindus* also in the west of India, or the lord paramount of the world. He, with *Bharat*, is buried at a place called *Nig'hhâ*, about forty cos to the west of *Multan*, in the mountains. His tomb is held in great veneration, both by *Hindus* and *Musulmans*: and there is held annually a meeting, and fair, to which no less than 100,000 men are supposed to resort. Before I dismiss this article, I shall observe that *Maullavi Sâleh*, who lived many years in a public capacity at *Tha't't'hâ*, described to me the tombs near that city, nearly in the same words with *Capt. Hamilton*. They are on the left of the road, as you go from the Delta to *Tha't't'hâ*, among low hills, which form the eastern point of a range coming from the S. W. toward *Thât't'hâ*; and then suddenly turning to the N. W. The place is called *Mecûli*, and they are now a little more than a mile from the southern extremity of the town; which is not now upon the same spot, where it stood in the time of *Capt. Hamilton*.

Formerly, says *Maullavi Sâleh*, the fort was in the centre of the town, and rather nearer to the southern extremity: but now it stands to the north of the town and out of it. This was in consequence of a dreadful epidemic, which desolated the northern part of the town chiefly. People died so fast, and in such numbers that there was nobody to

bury them. They remained in their own houses and the doors were walled up. The unfortunate survivors removed to the south and built huts there. A similar epidemic is mentioned by Hamilton, which carried away 80,000 of the inhabitants. These tombs were built by *Deryá-khán*, a descendant of another person of that name, and prime minister to Jam-Firoz, king of that country, according to Abul Fazil.

This *Deryá-khán* was only a governor of *Tha't't'há*, in the time of Shah Jehan, and who rebelled against his sovereign. Being defeated in battle, he was taken prisoner and brought to Delhi, where he was treated with unparalleled lenity. Capt. Hamilton is entirely mistaken, when he asserts, that he was king of Sind, and of course his descanting upon the misfortunes of the king and queen of Sind, is quite ridiculous and preposterous.

Maullavi Sáleh, declared to me, that there is no arm of the Indus between the town and the hills, and that he is fully persuaded from the nature of the ground that there never was one. The town is about a mile from the river. I conceive also that Capt. Hamilton is mistaken about the distance from Laheri-bandar to *Tha't't'há*. I suspect, that he brought his ship to Shah-bandar from which he went by land to *Tha't't'há*; then we must read forty cos instead of miles. His *Dun-ganh* is called *Dun-gurry* in the *Ain Acberi*; the first signifies the village, and the other the fort of *Dun*.

In the country of *Macarène* or *Macrán*, Stephanus of Byzantium mentions the river *Maxates*, which is obviously the Macshid of Otter: but its situation is still unknown: and it is not the same river with the *Il-Mend* or *Háb*.*

In the course of the foregoing essay, I have often mentioned Nautical Surveys along the coasts of *Sind* and *Macrán*: for these I am indebted to the learned work of Dr. Vincent. Every attempt of mine to procure them in this country, constantly proved abortive.

* Steph. Byzant. voce Alexandria.

Translation of the Vichitra Nátak or Beautiful Epitome ;—a fragment of the Sikh Granth entitled “ the Book of the Tenth Pontiff.”—
By Captain GEORGE SIDDONS, 1st Cavalry.

(Continued from page 320.)

Chapter VI.

It behoves me now, to give some information regarding myself, who visited earth, after performing austere devotions on the mountain of Brahm Kúnd, surrounded by the picturesque seven peaks.

On these seven pleasant peaks, the holy Pándavs worshipped. And here I also lived in the discipline of true religion, praying to the Supreme Being, and to the power which comes from God.*

My devotions were so strict, that I became absorbed in God and in his spirit; they were to me as it were my father and my mother; I loved them with all my heart.

The invisible one, was well pleased with my devotion, so much so, that at length, he willed for me to appear on earth, for the benefit of mankind.

I had no wish to be born, for I had given my heart's best affections with all humility to God, but God Almighty deigned to instruct me, and I preach to mankind the doctrines which he taught me.

God thus spoke unto me :—

When first I made the world, I peopled it with angels, and gave to them power and might; but they madly rebelled against me, and refused to obey my commands.

Whereupon I became sorely offended, and created a superior order of beings, with godlike attributes. These sought the worship of their inferiors, and styled themselves gods.

And when mankind was spread over the face of the globe, Mahádév called himself the *Eternal* one. Vishnu called himself *God*. Brahm also claimed *Supremacy*, and no one acknowledged the true and only God.

I then sent eight special messengers into the world, to give evidence concerning me, but these exhorted the people to believe in their divinity, and to worship *them* as gods.

* “Mahá Kál, Kál ká Arádi” Kál is here the spirit of Mahá Kál, emanating from him, as light does from the sun.

So those who knew me not, invoked and prayed to my false messengers. Some with bended knee adored the Sun, some the winds of Heaven, and some Fire.

Some hewed idols from the rocks, and fell down and worshipped them. Others prayed to the mighty ocean, and many with frightful ceremonies offered their devotions to *death*.

Those whom I sent to witness of me, bore false testimony of themselves; setting aside my instructions, they disseminated doctrines of their own.

They would not acknowledge me, neither was I even slightly remembered of them. And men became prouder and more arrogant daily, making for themselves gods of stone.

I then sent religious devotees, who turned against me like their predecessors: verily every clever man, who was born, invented and spread abroad some new tenets of his own.

So that none believed in the true God, none understood my creed. Mankind was confused with ignorance and folly, and animosities raged in the hearts of men, as forests are fired by a single spark.

Sects arose in every direction, and many were the creeds which sin imagined, and vanity taught, but the people were mad, for no one recognized me.

I then sent the Rikhis, who false to the trust imposed upon them, scattered abroad the seeds of their own impure doctrines, which took root in the hearts of men, so that they forgot me, all, save a few. Brahm thereupon composed the four Vêds, which pleased the world greatly, and were much esteemed. A faithful few clung to me, disregarding even the poetic influence of the Vêds.

Aye! and those who cared not for the Vêds, neither for the Koran, but putting their trust in me, believed, were saved from many evils which distressed those who had no god to protect them.

Those who heeded not false doctrines, but clung in patient hope to me, were received into heaven, and will never more be separated from their God.

Those who indulge the foolishness of caste, and claiming exclusive privileges, forsake my path, are condemned to inhabit earth, in various forms, and at last their portion will be hell.

There came one called Dut,* who established a creed of his own, he recommended that there should be long nails to the fingers, and that the hair should be platted, but he forgot me.

To him succeeded Gorakhnāth,† who converted mighty princes. He advised his followers to bore their ears, and to wear large glass ornaments in them, but he forgot me.

Then there was Rāma, the Joyous, who founded the tribe of Byrāgis. These wear necklaces of wood and beads, and cover their bodies with white ashes, but he forgot me.

In short the more talented the being was, whom I created, the more he inculcated vain doctrines of his own. Mohammed came, and held religious sway over Arabia.

He propagated his notions and told mankind that heaven could only be gained by mutilation and circumcision; he aspired to a divine origin and taught people to abandon me.

All in fact clung to their own tenets, and few acknowledged me. Therefore in pity for the blindness of my people, I called Govind Sīñh, and instructing him, sent him forth into the world, to proclaim these my words—

Oh Govind Sīñh! Thou art as it were my son, I send thee to make many converts. Scatter abroad the seeds of my religion whithersoever thou goest, and turn men from their folly and evil ways.

Govind speaks:—

I stood in humble obeisance, and bowing my head reverentially, replied, Great God, thou willest it, and I shall be the instrument for spreading thy religion throughout the universal world.

And so God sent me, and for this purpose came I into the world that I should teach all of you the revealed word of God, without animosity or ill feeling towards those who differ.

Beware, I would not that you should think me divine, those who style me God will be doomed to eternal perdition. I am but the poor servant of God, never think otherwise of me.

I am only the servant of God, whom he sent into the world to clear away all doubts, and arrange all the confusion which exists. I will

* Datya, the third of the name, who founded the Sect, Sannyāsis.

† Gorakhnāth the founder of the Jogi tribe.

explain all that God hath taught me, and not all the opposition, nor the scoffs of the people shall deter me from my purpose.

I will reveal the word of God,
And listen to no other creed,
I will mix with no other sects,
But teach *His* good doctrines only.'

I will worship no vain idols,
Nor idly bend my knee to stone,
I will praise the only true God,
Whose goodness is, to me, well known.

I will not, ever, plait my hair,
Nor deck my ears with crystal rings,
I'll act as God hath order'd me,
And listen not to foolish things.

I will glorify the *one* God,
And all, that he desireth, do,
I will praise him, and him only,
Because his creed alone, is true.

He, gracious, will enlighten me,
On him alone my thoughts shall rest,
He dwells for ever in my mind,
And all who love him, will be blessed.

Those who implicitly believe
In God, can't err, and sin defy ;
Grief harms them not. Who disbelieve,
Amidst tormenting scruples die.

For this cause only, was I born
To spread *His* word, where'er I go,
And those who put their trust in him
Shall cope with wretchedness and woe.

For this cause only was I born,
Hear me, oh, erring mortal, hear!
I have come to give thee comfort,
To wipe away the mournful tear.

Most grossly, have ye been misled,
By those who did, myself, precede,
They have not pointed out the paths
Which surely will to heaven lead.

Oh! ye shall never be deceived
Who put your trust in him alone,
Since those who put their trust in God,
Almighty God will not disown.

Some study the Korán, whilst others the Púrás believe
But both contain false doctrines, which tho' subtle can't deceive.

My friends, why will ye not believe?
And thus secure your happiness
Not now, but in eternity?

I will not plait my hair, nor put rings in my ears,
But silently bend my knee to God all-powerful,
I will not drop my eyelids in mock humility,
For God, who is good and just, hates hypocrisy,
Those who love God, hate the thing which is false,
Be ye sure, that God despiseth the vain.

A selfish man cannot enter heaven,
Nor one, absorbed in worldly matters,
God cannot bear deceitfulness and pride,
If you abandon God to seek for worldly praise
God will close upon you the gates of paradise.

Those who preach vain things and pride
Themselves on gaining converts,
Who point to empty forms, which
Do not conduct to heaven,
Shall themselves be condemned
To God's everlasting wrath.

The author's declarations :—

1. I will preach that, which God himself hath revealed to me.
2. They who worship God, shall hereafter inherit heaven.
3. Doubt not. The true worshipper is as much associated with God
4. As the white curling waves, are a part and portion of the ocean ;
5. Those who talk idly and wildly, are distinct from God.
6. God dwells not in the Véds, nor in the Korán, but in the hearts of such as love him.
7. Those who teach pride, and mock humility will receive the punishment of error.
8. Those who journey blindfold cannot see the way to heaven.
9. A sound understanding cannot contemplate a false doctrine.
10. The eloquent tongue cannot tell of the loving kindness of God, which is only to be *felt* in the hearts of those who love him.

Chapter VII.

Of the Writer's Origin.

My father travelled eastward, and performed pilgrimages. When he reached the confluence of the three rivers,* he occupied his time in making religious offerings. I first saw the light after we had come to Patna, but thence I was removed to Mádradesh, where I was carefully nursed, attended to, and strictly educated. By the time I became intelligent, my father was called away to heaven.

Chapter VIII.

I succeeded to my inheritance, and commenced teaching the word to the best of my abilities, amusing my leisure hours, by pursuing all kinds of sports, I slew many bears, stags, &c. &c. My dwelling was at the city of Páwalá or Náhan, the river flowed close to it, and I revelled in many enjoyments. I killed lions, wolves, and deer of many kinds.

At this time, the emperor Futteh Sháh without a cause picked a quarrel with me. He assailed me, but Sháh Sangráam and five chieftains prepared to do battle on my side, these were Jítmall, and Guláb

* विवेणी Priag.

Gázi, who were pleased at the prospect of fighting; Mahes Cháñd, and Gangá Rám who had vanquished large armies, and Lall Cháñd, who could tame the fury of a tiger. Diorám also, the chief of his tribe, was wroth to desperation, he fought with the skill of Dron.† Then there was the fiery Kripál, who with his battle-axe slew the brave Khán Hyát, and scattered the legions, as it is fabled that Krishn broke the butter churn. There also, raged the violent Nand Cháñd, who hurled his javelin, then drew forth his sword, the blade of which breaking, he fought at close quarters with his dagger, sustaining the hereditary fame of his race.

My uncle Kripál the Chhettri enraged, contended most furiously, and even when he was wounded by an arrow he overthrew many of the Muhammadan host.

The valiant Chhettri Sahéeb Cháñd slew the redoubted lord of Khorásan, and our soldiers fought so fiercely, that the enemy fled for his life.

Where Sháh Sangráam made his attack many Musalmáns bit the dust, and the dread Gopál single-handed spread consternation, as doth a tiger amidst a herd of antelopes.

There too, thundered Hari Chand amidst the throng, though an enemy he stood his ground manfully, and fired his arrows swiftly; they went right through all whom they struck.

Aye! Hari Cháñd was a stout warrior, his aim was as true as his heart, he slew many soldiers, weapons clashed together, and mighty heroes strewed the ensanguined field.

Jit Mall at length wounded Hari Chand in the breast, with a spear, he fell to the earth, wounds only increased the fury of the combatants; still they urged their coursers forward, and dying went to heaven.

Kúli Khán of Khorasán came forth, and dealt his blows so rapidly, that sparks flew about like as from a blacksmith's anvil. Wild beasts glutted themselves and gloried in the carnage.

How far shall I extend the narrative of this dreadful battle? thousands fought and were slain, a few only remained to tell the tale. The Rájás of Jaswál and Dadevál surrounded the Sháh, with their crippled bands; they fled for safety to the neighbouring hills.

* द्रोणः The military preceptor of the Pándavs.

Hari Chánd of the tribe of Chandál arose faint with the loss of blood. He scorned flight but urged by fidelity to his royal master, grasped his spear and struggled to the last; this mighty warrior was hacked to pieces.

At one time he nearly disabled me, an arrow from his bow, killed my horse, another whizzed past close to my ear, and a third, striking the metal clasp of my sword belt went through it, grazed my skin, but injured me no further. God preserved the life of his servant.

Alas! Nijábat Khán slew Sháh Sangráam whom many Musalmáns had in vain tried to kill. Sangráam's soul went to heaven, but ere it winged it's flight thitherward, the dying hero, dealt one parting blow which slew his slayer. The world sorrowed for his loss but heaven rejoiced.

Thus the mighty host which opposed me was overthrown and fled; the will of God prevailed, and I returned from the field, singing the song of triumph. I scattered rewards profusely, amongst my soldiers, but did not remain on the spot where I was victorious, proceeding to the country of Káhálúr I founded the city of A'nandpura.

I expelled all from my city who refused to fight in my cause, but my soldiers were protected and caressed. I abode for a long time at A'nandpura, encouraging the good and punishing the refractory and vicious, who were hung up like dogs.

Chapter IX.

I had remained thus peaceably for many months, when Meáh Khán went to Jammú, at the same time Alif Khán marched to 'Nadoun, where he declared war with Bhím Chánd, who invited me to assist him, and himself went forth to give battle.

He built a stockade, and filled it with matchlockmen and bowmen. Besides the great Bhím Chánd the chiefs Rám Sing, Súkh deo Gázi and the Rájá of Jasrót prepared for the fight. Also Prithi Chánd the prince of Dadwál and Kripál, these for sometime withstood the attack of the enemy, but at length were driven down the hill, the foe beating his war-drums and shouting vehemently.

Then Bhím Chánd waxed wrath, he chanted aloud the prowess of Hanúmán, and marshalling all his warriors, whose numbers were

increased by myself, he formed us into close column and charged.
We dashed into the enemy like a fierce whirlwind.

Enraged was Kripál,
The beasts rejoiced,
Music resounded,
Shrill was the horn's blast.
The youthful were slain,
And swords were clashing,
Hearts burnt with anger,
Swift flew the arrows,
Wounding the dauntless,
They fell on the earth,
Like hail in a storm!

The furious Kripál stood his ground firmly,
His arrows, made the bravest bite the dust,
Great chiefs and their vassals were slaughter'd
History, recorded this great battle.

The Siñhs, infuriate, pressed forward with eagerness and closed with the enemy, Nágúls, Págúls and Darólis, emulating each other. The gallant Diál too, strove to sustain the fame of the Bijrawáls.

Worm that I am! I fired off my matchlock and the bullet consigned a mighty prince to his rest, who in the agonies of death, still gave the war cry—"Kill, Kill." I then fired four arrows in succession to the right, and three to the left. I know not if they told or not, but it pleased God to arrest the slaughter.

The enemy fled, and we encamped on the field of battle, which was red with blood, and covered with the dead. Night came silently on, when nearly half of it had passed, the sounds of the enemy's mournful Nakkárás disturbed the stillness, as he continued his retreat.

At length the bright dawn of day enabled us to pursue, but Alif Khán was in full flight, he lingered not even to break his fast, and his fatigued army straggled after him without daring to halt.

For eight days we encamped on the banks of a river, and I visited the tents of the most influential amongst the Rájás, having agreed to be always their ally. I returned to my home, plundering the town of Alsón in my way, whose inhabitants were afraid to join our army, and I rested in comfort at Anandpúra.

*Chapter X.**The Battle of Nadoun.*

For some years my tranquillity remained undisturbed and I employed myself in improving my city, and regulating the morals of its inhabitants.

At length one Diláwar Khán came, and sent his son to me, as if on a friendly message, but himself at the head of an army, treacherously attacked me.

When the enemy was crossing the river the noise of the splashing awoke every one. Álam Síñh came and roused me, and my soldiers ran to their arms with alacrity.

Warlike instruments of every kind bellowed defiance and enmity, and my army hurried to the banks of the river, which though an ocean of kindness, gave the enemy such a cold reception, that he was benumbed in the attempt to cross it.

Frightened at the unexpected opposition when a surprize was intended, the Musalmáns fled without firing a shot, the cowards retreated without striking a blow. Many of them were slain, the rest, noiselessly returned their swords to their scabbards, and sneaked away ashamed, in the darkness of night to their wives.

God protected me and the efforts of the enemy were unavailing, he retreated, plundered and destroyed Barwá “en route” and encamped at Bhúlau. He could not injure me, so satisfied himself with wreaking his vengeance on Barwá, as Bunnyas* who dare not eat meat, pretend to be nourished with pebbles!

Chapter XI.

Alif Khán went to his father, but not being able to give a good account of his flight, he stood abashed, then his father Hussein Khán slapping his arms† addressed his chieftains loudly. They prepared themselves for battle. Hussein Khán headed his army, and encouraged his soldiers with his presence. He first of all plundered the Awáns,

* Hindus of a particular caste, who are not allowed to eat meat, put pebbles with their curry mussálá, which they suck and spit out, fancying their appetites are appeased.

† As wrestlers, before they begin to wrestle.

then overcame the people of Dúdwál and made the Rájput slaves; afterwards he devastated the valleys and no one attempted to check his progress. He distributed the plunder amongst his soldiers. For several days he laid waste the districts through which he marched, so that the intimidated Gúlaris contemplated suing for a treaty, as Hussein Khán approached their frontier, but God frustrated their schemes.

Rám Síñh accompanied the Gúlaris to treat with the enemy. They parleyed for several hours, when as the sand which is heated by the sun attributes the warmth to its own nature, denying the power whence it derived it, so, the lower orders of the Mohammedan host fancied themselves brave from the noble bearing of the Sikh emissaries who surrounded them. The slaves were inflated, and looked upon the Sikhs with contempt.

They gulled themselves into believing that the Gúlaris, the Kalúris, the Katóches were not equal to themselves. When the Gúlaris laid out their presents, these dogs scrambled to seize them, and disputes arising, the Gúlaris collecting their treasures, departed to a distance.

Avarice then prevailed over the minds of these Musalmán reptiles, losing all discretion, they began beating to arms. Instantly all was confusion, as when a tiger threatens a herd of deer. For fifteen hours they surrounded the emissaries and prevented them from eating.

In the meantime, the Sikh army incensed at the treatment, to which their ambassadors were subjected, sent some chiefs to expostulate, but the Patháns, puffed out with conceit, refused to listen to them, they said—"Give us up your treasures, or prepare to die."

Upon this Sangat Síñh begged of Gopál Síñh who was on the Musalmáns' side, to make peace between them, but his words were utterly disregarded, consequently it was resolved to seize Gopál as an hostage, pending the settlement of negotiations. That chief, however, overheard the plot, which was forming against him, and hurriedly departed to his clan.

Kripál was kindled with wrath, and decided upon fighting. Himmat Hussein, and the youthful Jummá, ordered the war-drums to be sounded. In an instant horses began to prance, matches were lighted, and triggers tried, to see if they acted freely. Then began deadly strife, all was confusion. Combatants shouting, blows resounding,

matchlocks thundering, trumpets shrieking, elephants screaming, and all the savage din of desperate war.

Bodies charged bodies, and the men's eyes were red with fury and hatred. Kripál led the van; one spirit animated all, the spirit of destruction: one continued shout rent the air, the shout of "Death, death."

The Katóch Rájá of Kángará rushed to the fray, as a lion springs upon its prey. Whenever the Chettris discharged their arrows, horses with empty saddles scoured the plain.

Kripál and Gopál met, and tore each other to pieces. One Hari Síñh though mortally wounded, killed several before he died.

Himmat-Kimmat, and Julál Khán, with his terrible battle-axe, stood their ground and fought with desperate valor. At this juncture the Rájá of Jaswál putting his horse into a gallop, rode at Hussein Khán, and stabbed him with a spear, but like a wounded boar, he only fought the fiercer.

If a soldier were struck, he thought it a compliment, and strove to return it. The disputed field was soon covered with the carcasses of the dead, and groans filled the air. A river of blood flowed, and the jackals slaked their thirst in it.

Hussein Khán faint with the loss of blood dismounted from his horse, and the Patháns surrounded him, they contended with fierce but hopeless energy. Mahádev, Brahm, and all the gods must have been roused from their contemplations, the heavenly minstrels sung dirges for the departed warriors, and the celestial dancers jumped with excitement.

Hussein still tried to hold his own, but the soldiers of Jaswál surrounded him, the most skilful attacked him. God willed it, and this brave warrior fell to rise no more; his soul was received in paradise.

When their leader was no more, the confidence of the enemy gave way, and his spirit was broken. Hari Síñh slew many of their principal chiefs; Chandála's Rájá too, plied the work of destruction but Sangat Rai was killed, and his adherents failed not to revenge his death.

Báz Khán and Himmat Khán fled and the followers of Kripál fought hand to hand for their chieftain's body. When Hussein was slain, the Musalmán army sullenly retreated. This mighty host vanished, as

doth the crowd, after the investiture of a Mahant. Thus our enemies were again defeated and we collected and buried our dead, our force remained assembled for a few days, when all necessary arrangements being concluded, we dispersed to our several homes.

God protected me, and amidst this shower of bullets I remained uninjured.

Chapter XII.

I have just told of a great battle at which the leader of the Musalmán army was killed, upon which Rústam Khán and Diláwar Khán sent their ambassadors to us, but rendered wise by experience, and apprehensive of stratagem, we dispatched Jughár Síñh properly supported to receive the embassy.

The treacherous Mohammedans attacked Júghár Síñh at the town of Bhúlau, who drove them from the town, and took up a strong position which at early dawn on the following morning, the worthless Gaj Síñh who sided with the enemy, threatened, but in vain, for assisted by Hádár Síñh, the force of Júghár Síñh held its ground, and was as immovable as a pillar whose foundation is buried deep in the earth. Hádár Síñh was wounded, and re-inforcements joined both armies.

Chandál Khán commanded the Mohammedan troops, and Jasmál Síñh, our army; animated by these brave leaders both sides fought like lions, and paradise being the portion of all who fall in the battlefield, the soldiers disregarded death.

In the midst of this dire conflict, Chánd Naráyan was killed. He was the friend and companion of Júghár Síñh, who lamenting his death, resolved to revenge it, and advanced singly. The enemy surrounded this brave man, he kept him at bay, and slew many soldiers, but numbers prevailed, pierced with a thousand arrows, he fell.

Chapter XIII.

Júghár Síñh died, and I returned to my home.

Then the powerful Aurangzéb became envious of my fame, he sent his son into the Panjáb, at the head of a large army. Many of my people dreading the approach of the emperor's own son went to hide

themselves in the neighbouring hills. Some tried to intimidate me, but they knew not the intentions of God.

Several left the happy city of Anandpúra to take shelter in the high hills, the cowards were greatly alarmed and fancied there was safety in flight; but the emperor had all these deserters ferreted out and they were destroyed.

Those who forsake their Gúrá, will have no
Resting place in this, nor in the next world.

On earth they are despised, in heaven
Rejected. Their case is a hopeless one.

For, they are as it were, always hungry
And in need. Such as leave the company
Of holy men, are useless in this world,
And damned eternally in the next.

The selfish world for which they live, scorns them.

Yes! those who leave their Gúrá are disgraced,
Their children do not thrive, but die, cursing
Their parents.

Those who laugh at the words of their Gúrá
Perish like dogs and gnash their teeth in hell,
God created Hindu and Musalmán,

Let both then follow their respective creeds.

Do Musalmáns respect those who forsake
Their own creed, to follow Mohammed's faith?

No! they despise, ill treat and plunder them.

Apostacy, never can be esteemed!

Miserable apostate! he returns

And wretched, seeks assistance from the Sikhs,

Compassionate they help him. What then?

His new found teachers, plunder him of all!

Wretched apostates! the clouds of error

Float away, and willingly, they would return

Unto their Gúrá, but he indignant,

Offended, hides his countenance from them,

They find him not, but go from whence they came,

Their labor all in vain. No Gúrá here.

No heaven hereafter. Hopeless their lot!

But those who love the Gúrú never feel
Adversity. "Riches and plenteousness
Shall be in their houses." Sin and evil
Can never assail them. They need no help
From Moslems, plenty is beneath their roofs.
If labour be their portion upon earth,
A happy conscience, softens all their toil.

He was called Mirzá Bég who destroyed the dwellings of those who fled from Anandpúra. Those who remained were safe, for the enemy never ventured to approach their thresholds. Those who deserted me, and bowed in subserviency to the Musalmán were treated with contempt, their faces were besmeared with filth and they were shaved. They looked like faqirs begging for alms.

Children pretending to be their converts, pelted them with stones. Their heads were thrust into bags, like asses to be fed with malidá.* Their foreheads were bruised with shoe-nails, and looked as if covered with the brahmanical wafer. Boys pelted filth at them, crying out the while, "Here are alms for you."

Such is the punishment of apostacy, but it is not so bad as the crime.

Those who have never fought in battles nor achieved any great action, live unknown, and die unremembered.

To know and to worship God, to respect and believe the words of his Gúrú, this is to achieve a great action.

The good never feel adversity. God reconciles them to it. Who can injure whom God protects? No one! No plots can harm him! He laughs at the designs of his enemies!

Trusting in the power of God, he knows that he is as well protected as the tongue in his mouth.

Chapter XIV.

Kál, loveth and protecteth all good men,
And averteth from them evil.
Those who worship him behold his power,
Those who serve him, share his mercy.

* Mashed vetches boiled.

True believers escape sad misfortunes,
 Kál overpowers all their foes.
 Kál, well knowing me to be his servant,
 Hath honored and exalted me.
 I acknowledge God, to be our father,
 As a mother, nurseth her child.
 The power of Kál hath sustained me,
 My heart is my only Gúru.
 When inspiration lent me support,
 I spoke, not of my own accord.
 Great Kál, imparted to me his wisdom,
 Without which my efforts were vain.
 I was no one, when God first noticed me,
 I was great by His selection.
 Listen then, all ye children of the earth,
 For my tenets are from above.

*Report on the Túrán Mall Hill, addressed to R. N. C. HAMILTON,
 Esquire, Resident at Indore. By CAPTAIN HAY, Asst. to the
 Resident.*

Túrán Mall, a hill in Candesh and one of the Satpurá range lies in about 21° 52' N. Latitude and 74° 34' East Longitude. It is about 15 miles in an easterly direction from Dhergaum, 10 or 12 south from Badael (near the mouth of the Turkul river) on the Nerbudda; 20 miles north from Sultánपुरa in Candesh, and 33 or 34 miles S. W. from Chiculda, on the Nerbudda. Its summit is to be gained from all of these above named places, but for the European traveller, the Chiculda and Sooltanपुरa or Sydah routes are the only practicable ones. From Chiculda the measured road or rather timber track is 43 miles in length and with the exception of the Tírápáni Ghaut (some 10 miles from the Túrán Mall Lake) no difficulties of any moment are to be surmounted. Here the ascent for a mile and a quarter, is very great, being about 1 in 2½, and taxes the energy of man and beast to the utmost. However, it is capable of great improvement and with a little labor and money expended might be made comparatively easy. At

present no camels can be taken further than the Bokrata jungle, which is at the foot of this ghaut. Bullocks and ponies must be solely relied upon as beasts of burthen. The route from Candesh viâ Sydah and Sultânpura is far more difficult of ascent than the foregoing, and beasts of burthen proceeding by this road, must be very lightly laden. The paths leading towards Dhergaum and Baducl are only passable for travellers on foot. Turan Mall seems to be about the highest of the hills in the Sâtpúra range, perhaps the Herass Hill in the Barwâni state excepted, which may be a few hundred feet higher, but which again has not the advantage of water on its summit. Turan Mall obtains its name from the tree (*Zizyphus albens*) called in Sanscrit "Turan" being so common there, and the adjunct "Mall" I believe to be a word in use with certain Bheels, to designate any high or table land. By barometrical measurement the highest point of Turan Mall (a small hill on its eastern side) attains an altitude of 3373 feet; the banks of the lake being 265 feet below this. This lake is one of the most attractive spots on Turan Mall, situated on the southern end, the traveller from the Nerbudda has to pass over the whole length of the hill ere he reaches it. It is about one mile and six furlongs in circumference and 650 yards in breadth, of great depth, being fathomed in the centre and found to be $34\frac{1}{2}$ feet deep. It is formed by the artificial obstruction of the gorge betwixt two small hills. At one end of this embankment there is a passage for the waters of the periodical rains, which are carried off towards a smaller lake, a few hundred yards from the large one, and about 30 feet under its level. The flooded waters of these two lakes are carried off to the Sîtâ Kúnd, a precipice varying from 400 to 500 feet in height. At the water-fall, the first fall by measurement is 243 feet in height, being perpendicular without let or hindrance. The view at this place in the monsoon, during a flood must be grand indeed, for the waters from the lakes and what is received in transit, must make a very considerable volume.

The jungles about the hill contain many varieties of trees and shrubs which are not to be met with in Nimar or Málwâ. To the botanist the field here opened to his research would be most attractive and entertaining. The edible fruits generally met with and not common to the plains are those of the Turan (*Zizyphus albens*); Chironji (*Chirongia sapida*); kutaie, a small red berry; sengul; sasil; the wild

mango, and the wild plantain. The roots also of a tree resembling the plantain called by the Bheels "kaiel kanda" are also used for food. In common with the lowlands, the fruit trees are numerous: a few may be enumerated, such as the jamun (*Eugenia jambolana*); amru (*Philanthus emblica*); the tendu or bastard ebony; the several species of Indian Ficus; the baër or jujube tree; the mowá or broad-leaved Bassia; the imli or tamarind; and the karondá (*Carissa carondas*). The gum trees are the "sale" (*Boswellia thurifera*) producing olibanum; the dhaowra, kurík, khaire, and the bhijá, the last used medicinally. Besides the above there are many trees and shrubs novel to the resident of the plains and called by the natives, the sew-run, bearing a red flower; the madul; gundáli (*Pæderia factida*); sajri; kerow, said to flower only once in 12 years; manja (berries used for intoxicating fish); gúndi (*Cordia myxa*) used as a pickle; kinjí, the seeds giving an oil which is used medicinally; kúmrí; phasi; siön; mokhá (red nightshade) having edible leaves; amultás (*Cassia fistula*), the kherowlá, with yellow flowers similar to the amultás; kharnag with long pendant seed pods like the amultás; and the khankar, the fruit of which is used for pickles.

Creepers also are numerous, and almost every tree has its parasite. The hill colocynth (*C. Hardwickii*) or ruhori indragam is not uncommon; as also the pawri, growing in a wild state. Here also the grasses grow most luxuriantly; the rusá grass so noted for the oil extracted from it being most abundant. The trees used for building purposes are very diversified. The principal ones are the teak; tendu or ebony; jamun; dhamni, or bastard lance; sag; kusum, on which the lac insect is found; the toon; sirsa; bhati sisam, kulum; anjun; kear, and the tunch or tause, the wood of which is particularly hard and tough.

The geological formation of the Turan Mall hill and those in its vicinity is uniformly of trap and basalt with a red clay, evidently containing iron. The summit of the hill is irregular having low hills of 100 and 150 feet high rising in different places from the general elevation of the plateau which altogether may include an area of 16 square miles. Table-lands are to be met with in several spots; but are not of great extent. The height of the ulterior ridge which is on almost all sides precipitous and perpendicular may average 400 feet from the

debris of the fallen rocks in the valleys below. The fissures in this ridge are very deep and irregular and bear the impress of a mighty convulsion of nature having occurred in ages past.

The summit of Turan Mall is interspersed with remains of numerous temples and walls. The latter have evidently been built merely for protection from external foes, and extend for miles in all directions, but are chiefly to be seen at points where nature required the aid of art to make the hill impregnable. The temples having been built with loose stones and no cement or mortar of any description used in their erection, have consequently during the course of years, made but a slight resistance to the force of the elements and their sites are now to the unobservant eye, hardly distinguishable from the ground which surrounds them. The earthen embankment or bund on the eastern side of the lake, measuring some 460 yards long, and faced with stone, is remarkable for its solidity, which cannot be less than 170 or 200 feet at its base with a height of 40 feet. The labour expended upon it must have been immense and this work would alone draw our attention and wonder as to the means and power of the individual who could execute, as well as devise, such an undertaking. Nothing approximating to certainty, can be said as to the ancient history of Turan Mall. What the natives say regarding it, is puerile in the extreme and unworthy of notice. The evidences of a former numerous population are plain enough, but not a vestige of an inscription remains to guide one in his researches. On the south side of the hill in a small artificial cave about 12 feet square an image of Párswanáth is to be seen. At this cave a small annual mela or fair is held in October. Besides this, there are other and numerous sculptured evidences of the Jaina religion to be found by the sites of ruined temples; but they again have seemingly in places been appropriated by the followers of the Brahmanical faith at a later date as stones to form the wall of their own temples. One of the approaches to Turan Mall is through the wall on the S. E. side. This has been named the "Arawassa" Durnaza. What the derivation of "Ara" may be, I am at a loss to conjecture; "wassa" may be but a corruption of the Sanserit word "basa" a dwelling or residence. The inhabitants of this portion of the Sâtpura range are mostly Bheels and Paurias. The first are distinguished under several castes and denominations, numbering, I believe, upwards of 84.

The Bheels residing on Turan Mall boast of being descended from a Rajpoot ancestry, and style themselves "Simlí." Altogether there are not more than 40 families located on the hill, and their huts are dispersed far and wide in all directions. They do not bear any general peculiarity of features in their physiognomy, and I have noticed that, saving perhaps the bearing and impress of a persecuted race, there is nothing to distinguish them from the men of the plains. They are slight and spare in their limbs and body, but this only conduces to that great power which they all have in common of undergoing fatigue and exertion when called upon to do so. With all this endurance they have a thorough contempt and dislike to labour as understood by us. Gaining at best but a precarious subsistence from the fruits of the jungle the generality of Bheels do not interdict themselves from any description of animal food when they have it in their power to indulge in it, and the flesh of the cow, buffalo, sheep, goat, boar and deer are equally prized. Their religion is generally of a most simple and primitive description, I remark generally, as their notions on such subjects are variable and not imbued with any deep feeling. The chief deities worshipped on Turan Mall are named, Sudal Deo, Kúmbelh Deo, Mamnia Danip and Goracknáth. The first is invoked in conjunction with the sun and moon, and is supposed to have the elements under his controul. Kúmbelh Deo is worshipped at the Dewáli and may be another form of Kálí, Mamnia Dunip is evidently the "Ceres" of these mountaineers. The first fruits of the season are offered at her shrine, and she is the dispenser of the bounties of mother earth. Gorucknath is a deity of the Hindus and, I fancy, lately introduced. His devotees are not numerous amongst the Bheels, who are rather lukewarm in his adoration.

The customs pertaining to the three great events in a man's existence are very simple and void of display. On the birth of a child, his or her advent into the world is not ushered in by any loud acclamations or discharge of fire arms so common to the inhabitants of India. The father merely collecting a few friends together, over the discussion of a jar of spirits, mentions the name by which he wishes his child to be designated. When a Bheel is desirous of joining himself to the object of his regard and no objections are shown by the family of the girl, the friends of the engaging parties are called to witness the ceremony

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and forms of marriage, which are continued during the space of three days. On the first day the friends of each are feasted at the houses of the respective parents, where the spirit distilled from the flower of the mowa tree adds not a little to the hilarity of the guests. On the second day the friends of the young couple take them on separate occasions to the foot of a tree called "singa" which is considered sacred and where certain ceremonies of worship are gone through. On their return from devotion, the senior of the party taking a little liquor in a brass vessel makes an oblation to the earth, in the name of either the bride or bridegroom, as the case may be, and then their bodies, feet and hands are smeared over with turmeric. As yet the family of the bridegroom has not visited the bride, but on the evening of the second day the members of it accompanied by their friends in a body come before the house of the bride where they are met by her relations and a preconcerted struggle takes place to break a bamboo previously provided, one party pulling against the other. On this being accomplished, certain omens are prognosticated from the fracture in the bamboo. The evening closes over the mirth and enjoyment of the assemblage. On the morning of the third day the female relations of the bridegroom make a forcible entry into the bride's house and take her to their own habitation *vi et armis*, which when happily accomplished the marriage rites are supposed to be finished and friends disperse to their several avocations. A wife generally costs upwards of 20 rupees; if the lover is not possessed with worldly gear to that amount he must contract, like Jacob of old, to labour for his father-in-law a stipulated period which may vary from 2 to 5 years. On the death of a Bheel, his nearest relations collect his cooking utensils, his axe, bow and arrows and taking them with the body, burn the latter. In this ceremony they are joined by their friends who after the funeral rites are finished, collect at the house of the deceased to sympathize and condole with the relatives. A period of several days having elapsed the nearest of kin cooks some rice, and having put it into two separate platters in the name of the deceased, leaves one on the place where the body was burnt and the other before the threshold of his late dwelling. This is intended as provision for the spirit who is considered to be still roaming about. No other rites are followed. Cremation is not resorted to with the bodies of women and infants, they are simply buried and a

cairn of stones heaped over the grave ; a custom which has been handed down to them from their ancestors, but as to the purport of such singularity, in making a difference, betwixt the obsequies of the two sexes, they profess ignorance. Believing in the transmigration of souls, they are besides, and perhaps in consequence, much given to superstitious reliance in omens derived from animals and birds.

During the period of my stay at Turan Mall, I had every reason to judge favorably of its climate. The accompanying meteorological observations will show a mean maximum of temperature of 85.47 for the month of May ; which is particularly low, for the altitude attained. To account for this it must be taken into consideration that several causes are brought into play ; the proximity of a large lake, the evaporation from which extending over a superficies of upwards of 120 square acres must be very great ; adjoining forests, which are known always to conduce to decreased temperature ; the soil which being of a plastic and attractive nature will also materially aid to lower the range of the thermometer.

Above the influence of the hot winds Turan Mall is visited for the greater part of the year by strong and steady winds from the W. and S. W. quarters, which evidently coming from the ocean (distant about 100 miles) and carrying along with them a great amount of moisture, add much to the agreeable sensation of the atmosphere, which to the feelings, seems always to be of a temperature lower than that indicated by the thermometer. Every thing on the hill tends to prove a temperate climate. The stranger is first attracted by the greenness and freshness of the trees and shrubs, and the grass which where it has been burnt, will even in May, the hottest month of the year, throw out during the course of a few days, new shoots : and this not after any fall of rain, but from the moisture naturally in the soil nourishing the roots. Turan Mall, however, with all the benefits which might be derived from a residence on it will not, I am afraid, bear a close comparison to the sanatorium in the Mahábaleshwar hills which has a general temperature of 5 degrees or so lower than that of the place now under discussion. In the equability of climate I doubt if there is much difference. The annual mean of daily variation at Mahábaleshwar being nearly 10° and that of Turan Mall merely in the hottest month of the year not exceeding 15.33. For May the power of the

sun's rays is equal to $30^{\circ} 12'$, which I have not the means of comparing with Mahábáleshwar, but which, I doubt not will, not exceed it very much if at all. The hill is very subject to thunder storms, with great falls of rain, and I have been informed by its inhabitants that during the monsoon such is the intensity of the rain, that for days prominent objects within a few yards of their huts are entirely concealed from view. Of this I had demonstration, for though on the two occasions specified in the register of observations, rain did not fall for any length of time, nevertheless a few hours sufficed to indicate a fall of 12.5 inches. The cold season is said to be particularly severe; and frost of common occurrence. The Bheels state that the sides of the lakes have been repeatedly frozen, and on a late occasion the smaller lake (which may be 150 yards long and 100 broad) was almost completely frozen over. Amongst the natives, disease occurs but seldom; with the exception of slight fevers (easily reduced by their own simple treatment) and dysentery after the rains, there is nothing else to give one reason to believe that Turan Mall is visited by any epidemic. The months most desirable for a residence on the hill, would be April and May. Previous to the latter part of April, I am not inclined to suppose that the disparity in the climate of the place and that of the plains is so great as to cause much benefit to an invalid seeking change of air. As a sanatorium, perhaps, the hill does not boast of such a climate as would lead one to believe that an invalid far advanced in disease would receive much good from a trip to it. Nevertheless to one not already prostrated from illness, but whose ailments only require a change of air and scene, I believe few places would afford a more agreeable retreat. As a sanatory station to European soldiers Turan Mall has many objections. The most conclusive being the difficulty with which it is reached; the extent of jungle which is to be traversed, the enhanced cost of provisions which might be expected consequent on bad rains, Sydah being the nearest market, and the limited period of time to be passed on the hill, the severe rainy season precluding any hopes of its being a fit habitation for invalids during the prevalence of the monsoon. As compared with Nimar the range of the thermometer shews a most gratifying result. For the month of May at

| | | | |
|-----------------------------|-------|---------------------------|-------|
| Mundlasir, the max. was, .. | 104°. | Turun Mall, the max. was, | 85.47 |
| Ditto..... mean..... | 93.5 | Ditto.... mean | 77.78 |
| Ditto..... minimum .. | 83. | Ditto.... minimum .. | 70.14 |

thus showing a difference of more than $18\frac{1}{2}$ degrees in favor of the latter. Mundlasir is considered to be in general about 7 degrees higher in temperature than Mhow and Indore in Malwa.

In conclusion I would remark that people desirous of making a trial of the climate of Turan Mall would do wisely, if they made arrangements for supplies for themselves and retainers to be procured from time to time on the Nimar side at Chiculda and Barwáni and on the Candesh at Sydah (6 miles north of the Tapti) and the adjoining villages. They must come provided with every thing, as the Bheels living on the hill grow grain and other produce merely for their own limited consumption. If a prolonged stay is anticipated, it would be advisable that they be accompanied by a carpenter or two and a few thatchers for the purpose of erecting a more substantial habitation than that afforded by canvas. The Bheels inhabiting the hill with management will be always found ready to work for the European stranger; but with the exception of cutting down and collecting timber, bamboos and grass and the making of a very substantial description of rope from the bark of the unjan tree, nothing more can be expected from them. Their great incentives to exertion seem to be arrack and tobacco; with a due and cautious application of these luxuries, in addition to the just hire of their labour, difficulties vanish. Should the visitors to the hill be sportsmen, I am afraid they will not find many attractions on the summit; but in the surrounding jungles, the jungle fowl is very common and the wild buffalo with all the descriptions of large game usually found in the plains are numerous enough. From Nassick, officers are in the habit of going to Vujuneer; and from Dhoolia and Malligaum, to Sapt-Sing for the hot season. The difficulties to be surmounted in reaching Turan Mall, I have been informed are not greater than what are every year undergone by the gentlemen visiting for health and recreation the above-named hills.

Route from Sydáh, on the Gumti, in Candeish, to the Turan Mall Hill.

| Territory. | Names of Places. | Distances Miles. | Remarks. |
|------------|---|------------------|---|
| British. | Sydáh (16 miles North of the Taptí,) .. | .. | On the Gumti River, a considerable town. The residence of the Sultán-púra Mámlatdár. Supplies abundant. |
| Ditto. | Sultánpúra, | 8 m. | Formerly a large town, now totally in ruins, with a Fort and the remains of good houses. Beautiful trees and a small river. |
| Ditto. | Haldiä, | 12 m. | At 2 miles distance from Sultánpúra pass Tulwae, formerly a Ryut village, now inhabited by Bheels. 8 miles further on, cross the Kamti U'tar a small river. After which the ascents commence. 2 miles from the river reach a place called Haldiä, being a deep Khoond, but no village. Water abundant. |
| Ditto. | Turan Mall (Lake), • | 10½ m. | 6 miles from last halting ground pass a small Bheel village called Sukaljeri, and 3 miles further on Kálápáni, where formerly a few Bheels resided. The road is tolerable to Sukaljeri, thence a steep ascent succeeded by several sharp pitches, and one descent to Kálápáni. From Kálápáni to Turan Mall ½ a mile the ascent is very steep. On reaching the summit of the hill the road to the lake is over level ground. |

Route from Chiculda, on the Nerbudda to the Turan Mall Hill, in Candesh.

| Territory. | Names of Stages. | Distance. | | Remarks. |
|------------|-----------------------|-----------|----|---|
| | | M. | F. | |
| Holkar. | Chiculda, .. | 0 | 0 | A considerable village on the right bank of the Nerbudda. Supplies scanty but procurable at Barwani 4 miles distant. At Chiculda there is a Bungalow. |
| Barwani. | Gohi River, .. | 17 | 4 | Encamping ground on the left bank of the stream and about half a mile to the east of a few Bheel huts. The place called Kosba and the residence of a Bheel naick by name Dowla. From Chiculda the road for 6 miles lies nearly due west and along the banks of the Nerbudda through the villages of Pendra, Nandgaon, Pichowri and Sandul 8 miles 1 furlong, from Chiculda the Gohi Naddi is first crossed at a place called Bambta, where 2 or 3 Bheel families have erected their huts, a few hundred yards further on, it is crossed a second time, and 3 miles from Bambta a third time. 4 miles from Bambta a rather steep Ghaut is met with, and 5 miles 3 fur. from this Ghaut the encamping ground is reached. For the first 8 or 9 miles from Chiculda, there is a road for hackries though not a very well defined one. Beyond this the tree jungle is attained, and the road gradually dwindles down into a mere timber track. |
| Barwani. | Bokrata, .. | 13 | 2 | The name of the jungle where it is usual for travellers proceeding to Turan Mall to make a halt. The encamping ground is in a thick grove of Bambús on the bank of a small Nalláh, affording water throughout the year. No Bheel huts are to be found for several miles round. 4 miles from the Gohi Naddi there is a small Ghaut. 4 miles 1 fur. further on the Dákú Nalláh is reached and the road lies for several hundred yards along its bed. From the Dákú Nalláh to encamping ground is a distance of 5 miles 2 fur. The ascent from the Gohi Naddi to Bokrata is very gradual though the latter place is 2015 feet above the level of the sea and 1342 higher than the Gohi Naddi. |
| British. | Turan Mall (Lake), .. | 12 | 3½ | From Bokrata to the foot of the Jeciar Ghaut 2½ miles, the road lies along the course of a small Nalláh, very stony and troublesome for loaded animals. From the bottom of the Jeciar Ghaut to the summit is 1 mile 3 fur., the ascent being very difficult and steep. 1 mile 1 fur. from the top of the Ghaut a few Bheel huts are passed and a small spring is reached. Further on 1 mile 6 fur. the Turan Mall Ghaut is reached, but it is comparatively easy to that of Jera. The top of the Turan Mall Ghaut at the Ara-wassa gate to the lake is a distance of 3 miles 5½ furlongs. |

The instruments were exposed in a
shelter with a S. exposure 25
feet above the surface of a lake.

Observations made at Taran Mall, Long. 74° 34', Lat. 21° 52', Alt. 3208 feet, During the month of April, 1851.

N. B.—In the Register retained, the Barometrical Observations should be entered as read without correction, and corrected only in the Return forwarded. Unless the Barometer be perfectly trustworthy, and due attention can be given to accurate reading, and particularly as to time, the Pressure observations are of little value. The position and description of the instruments ought to be given in each return. If the whole of those wanted cannot be made, any set that may be deemed best may be selected and the same ought to be strictly studied by.

| Days of the Month. | Observations made at Sunrise. | | | | Maximum Pressure observed at 10 A. M. | | | | Minimum Pressure observed at 4 P. M. | | | | Observations made at Sunset. | | | | Observations made at 10 P. M. | | | | Maximum and Minimum Thermometer. | | Max. Therm. in Sun's Rays. | | Rain Gauges. | | Remarks.* | Days of the month. | | | | |
|--------------------|--------------------------------------|--------------|--------------|-------|---------------------------------------|-----------------------|-------------|-------|--------------------------------------|--------------|----------------------|-------|--------------------------------------|--------------|--------------|--------|--------------------------------------|----------------------|-------------|-------|----------------------------------|-------|----------------------------|----------|--------------|-------|-----------|--------------------|---------|---------|--------------|-----------------------|
| | Barometer reduced to 32° Fahrenheit. | Temperature. | | Wind. | Barometer reduced to 32° Fahrenheit. | Temperature. | | Wind. | Barometer reduced to 32° Fahrenheit. | Temperature. | | Wind. | Barometer reduced to 32° Fahrenheit. | Temperature. | | Wind. | Barometer reduced to 32° Fahrenheit. | Temperature. | | Wind. | Maximum. | Mean. | Minimum. | Maximum. | Inches. | Feet. | | | Inches. | Feet. | | |
| | | Of the Air. | Of Wet Bulb. | | | Direction at Sunrise. | Of the Air. | | | Of Wet Bulb. | Direction at 4 P. M. | | | Of the Air. | Of Wet Bulb. | | | Direction at Sunset. | Of the Air. | | | | | | | | | | | | Of Wet Bulb. | Direction at 10 P. M. |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 1 | | | | |
| 2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 2 | | | | |
| 3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | | | | |
| 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 4 | | | | |
| 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 | | | | |
| 6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 6 | | | | |
| 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 7 | | | | |
| 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 8 | | | | |
| 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 9 | | | | |
| 10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 10 | | | | |
| 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 11 | | | | |
| 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 12 | | | | |
| 13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 13 | | | | |
| 14 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 14 | | | | |
| 15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 15 | | | | |
| 16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 16 | | | | |
| 17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 17 | | | | |
| 18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 18 | | | | |
| 19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | 19 | | | | |
| 20 | 27.17 | 78 | 78 | 64 | N.W. | 27.22 | 86 | 84 | 66 | W. | 27.17 | 88 | 86 | 72 | W. | 27.17 | 85 | 84 | 72 | W. | 27.10 | 82 | 80 | 65 | W. | 91.5 | 81.7 | 72 | 102 | 20 | | |
| 21 | 27.15 | 72 | 72 | 67 | N.W. | 27.10 | 83 | 81 | 69 | N.W. | 27.05 | 92 | 87.5 | 65.5 | N. | 27.02 | 88 | 84.5 | 65 | N.W. | 26.97 | 83 | 81.5 | 64 | W. | 91.5 | 81.7 | 72 | 104 | 21 | | |
| 22 | 26.97 | 75 | 74 | 64 | W. | 26.97 | 84 | 83 | 68 | W. | 26.95 | 90 | 88 | 66 | N.W. | 26.97 | 85 | 82 | 67 | W. | 26.97 | 80 | 79 | 65 | W. | 91.5 | 81.7 | 72 | 102 | 22 | | |
| 23 | 26.97 | 72 | 71 | 63 | W. | 26.97 | 82 | 81 | 74 | W. | 26.95 | 90 | 86 | 65 | N.W. | 26.97 | 84 | 82 | 67 | W. | 26.97 | 80 | 79 | 65 | W. | 91.5 | 81.7 | 72 | 102 | 23 | | |
| 24 | 26.97 | 72 | 72 | 66 | W. | 26.97 | 86 | 84 | 66 | W. | 26.95 | 92 | 89 | 67 | W. | 26.97 | 84 | 82 | 67 | W. | 26.97 | 80 | 79 | 65 | W. | 91.5 | 81.7 | 72 | 102 | 24 | | |
| 25 | 26.97 | 72 | 72 | 66 | W. | 26.97 | 86 | 84 | 66 | W. | 26.95 | 92 | 89 | 67 | W. | 26.97 | 84 | 82 | 67 | W. | 26.97 | 80 | 79 | 65 | W. | 91.5 | 81.7 | 72 | 102 | 25 | | |
| 26 | 26.97 | 72 | 72 | 66 | W. | 26.97 | 86 | 84 | 66 | W. | 26.95 | 92 | 89 | 67 | W. | 26.97 | 84 | 82 | 67 | W. | 26.97 | 80 | 79 | 65 | W. | 91.5 | 81.7 | 72 | 102 | 26 | | |
| 27 | 26.97 | 72 | 72 | 66 | W. | 26.97 | 86 | 84 | 66 | W. | 26.95 | 92 | 89 | 67 | W. | 26.97 | 84 | 82 | 67 | W. | 26.97 | 80 | 79 | 65 | W. | 91.5 | 81.7 | 72 | 102 | 27 | | |
| 28 | 26.97 | 72 | 72 | 66 | W. | 26.97 | 86 | 84 | 66 | W. | 26.95 | 92 | 89 | 67 | W. | 26.97 | 84 | 82 | 67 | W. | 26.97 | 80 | 79 | 65 | W. | 91.5 | 81.7 | 72 | 102 | 28 | | |
| 29 | 26.97 | 72 | 72 | 66 | W. | 26.97 | 86 | 84 | 66 | W. | 26.95 | 92 | 89 | 67 | W. | 26.97 | 84 | 82 | 67 | W. | 26.97 | 80 | 79 | 65 | W. | 91.5 | 81.7 | 72 | 102 | 29 | | |
| 30 | 26.97 | 72 | 72 | 66 | W. | 26.97 | 86 | 84 | 66 | W. | 26.95 | 92 | 89 | 67 | W. | 26.97 | 84 | 82 | 67 | W. | 26.97 | 80 | 79 | 65 | W. | 91.5 | 81.7 | 72 | 102 | 30 | | |
| 31 | 26.97 | 72 | 72 | 66 | W. | 26.97 | 86 | 84 | 66 | W. | 26.95 | 92 | 89 | 67 | W. | 26.97 | 84 | 82 | 67 | W. | 26.97 | 80 | 79 | 65 | W. | 91.5 | 81.7 | 72 | 102 | 31 | | |
| Sums. | 246.13 | 820 | 812 | 690 | 2 | 246.29 | 915 | 897 | 718.5 | 5 | 246.83 | 996 | 954.5 | 717.5 | 13 | 245.80 | 947 | 915.5 | 718 | 7 | 245.77 | 992 | 876.5 | 699 | 5 | 1002 | 888.1 | 774 | 412 | 1174 | Sums. | |
| Means. | 26.92 | 74.54 | 73.81 | 62.72 | .. | 26.93 | 83.18 | 81.54 | 65.31 | .. | 26.90 | 90.5 | 86.77 | 65.22 | .. | 26.89 | 86.09 | 83.22 | 65.27 | .. | 26.88 | 82 | 79.68 | 63.54 | .. | 91.09 | 80.73 | 70.36 | 137.3 | 1106.72 | Means. | |

* It is important to make remarks as full and minute as possible.

The Instruments were exposed in a shoullaree with a S. W. exposure 25 feet above the surface of a lake till the 4th May; when they were removed to a small thatched house with wattle and daub walls and placed in a room open to the free influence of the wind.

Observations made at Turan Mall, Long. 74° 34', Lat. 21° 52', Alt. 3208, During the month of May, 1851.

N. B.—In the Register retained, the Barometrical observations should be entered as read without correction, and corrected only in the Return forwarded. Unless the Barometer be perfectly trustworthy, and due attention can be given to accurate reading, and particularly as to time, the Pressure observations are of little value. The position and description of the instruments ought to be given in each return. If the whole of those wanted cannot be made any set that may be deemed best may be selected and the same ought to be strictly abided by.

| Observations made at Sunset | Observations made at 10 a. m. | Maximum and Minimum Temperature | Max. Therm. in Sun's Rays | Rain Gauges. |
|-----------------------------|-------------------------------|---------------------------------|---------------------------|--------------|
|-----------------------------|-------------------------------|---------------------------------|---------------------------|--------------|

[illegible]

* It is important to make remarks as full and minute as possible.

*Route from Chiculda, on the Nerbudda to the Turan Mall Hill, in
Candesh.*

| Territory. | Names of Stages. | Distance. | | Remarks. |
|------------|----------------------|-----------|----|---|
| | | M. | F. | |
| Holkar. | Chiculda, . | 0 | 0 | A considerable village on the right bank of the Nerbudda. Supplies scanty but procurable at Barwani 4 miles distant. At Chiculda there is a Bungalow. |
| Barwani. | Gohi River, | 17 | 4 | Encamping ground on the left bank of the stream and about half a mile to the east of a few Bheel huts. The place called Kosba and the residence of a Bheel naick by name Dowla. From Chiculda the road for 6 miles lies nearly due west and along the banks of the Nerbudda through the villages of Pendra, Nandgaon, Pichowri and Sandul 8 miles 1 furlong, from Chiculda the Gohi Naddi is first crossed at a place called Bambta, where 2 or 3 Bheel families have erected their huts, a few hundred yards further on, it is crossed a second time, and 3 miles from Bambta a third time. 4 miles from Bambta a rather steep Ghaut is met with, and 5 miles 3 fur. from this Ghaut the encamping ground is reached. For the first 8 or 9 miles from Chiculda, there is a road for hackries though not a very well defined one. Beyond this the tree jungle is attained, and the road gradually dwindles down into a mere timber track. |
| Barwani. | Bokrata, .. | 13 | 2 | The name of the jungle where it is usual for travellers proceeding to Turan Mall to make a halt. The encamping ground is in a thick grove of Bambús on the bank of a small Nalláh, affording water throughout the year. No Bheel huts are to be found for several miles round. 4 miles from the Gohi Naddi there is a small Ghaut. 4 miles 1 fur. further on the Dákú Nalláh is reached and the road lies for several hundred yards along its bed. From the Dákú Nalláh to encamping ground is a distance of 5 miles 2 fur. The ascent from the Gohi Naddi to Bokrata is very gradual though the latter place is 2015 feet above the level of the sea and 1342 higher than the Gohi Naddi. |
| British. | Turan Mall (Lake),.. | 12 | 3½ | From Bokrata to the foot of the Jeer Ghaut 2½ miles, the road lies along the course of a small Nalláh, very stony and troublesome for loaded animals. From the bottom of the Jeer Ghaut to the summit is 1 mile 3 fur., the ascent being very difficult and steep. 1 mile 1 fur. from the top of the Ghaut a few Bheel huts are passed and a small spring is reached. Further on 1 mile 6 fur. the Turan Mall Ghaut is reached, but it is comparatively easy to that of Jera. The top of the Turan Mall Ghaut at the Ara-wassa gate to the lake is a distance of 3 miles 5½ furlongs. |

Remarks for the Month of May.

1st.—Wind light, veering to north 10 A. M., but not continuing so for more than an hour, springing up again at 4 P. M.

2nd.—Very calm wind from N. from 10 till 4. P. M. Slight streaked cirri.

3rd.—Wind from W. in morning. S. and S. W. during the day ; clouds light flacculent and cirri.

4th.—Wind W. dark cirri.

5th.—Light wind from W. in morning, variable in afternoon and in gusts from N. and N. E. ; clear in the morning, dark cirri in afternoon.

6th.—Wind very variable throughout the day, N. and N. E. in afternoon, settling to W., strong breeze from W. all night ; sun obscured all day, cirro cumuli general.

7th.—Cirro cum. general ; a strong breeze at sunrise from S. W. which continued till noon, sun obscured for greater part of the day.

8th.—Cir. cum. general ; at sunrise a strong breeze continuing till 10 A. M. ; sun dim and obscured.

9th.—Clear throughout the day with the exception of slight cir. cum. at sunrise.

10th.—Clear throughout the day, a few light flacculent fog clouds at sunrise. Heavy dew falling during the night.

11th.—Ditto ditto ditto ditto ditto ditto.

12th.—Strong breeze from the W. blowing at sunrise which gradually veered to the S. W., by noon clear.

13th.—Clear during the morning ; cum. stratus visible to the East in the afternoon.

14th.—Ditto ditto ditto ditto ditto.

15th.—A few light flacculent clouds visible on the S. W. horizon, but disappearing by noon.

16th.—Clear morning, forenoon detached cumuli pretty general, disappearing by afternoon.

17th.—A few light cumuli in all directions but disappearing by evening.

18th.—Clear.

19th.—Ditto.

20th.—Ditto.

21st.—Clear.

22nd.—Ditto.

23rd.—Ditto, the sun obscured by cumuli to the West at sunset.

24th.—Ditto about sunrise a small fog cloud visible to the S. W. of the Lake.

25th.—Detached cirro cum. general for the first part of the day. In the afternoon verging to cirrus.

26th.—At sunrise calm with the sun obscured by dense atmosphere a gentle wind rising at 9 A. M. from the W. Suddenly veering at 11 A. M. to the N. E. and E. ; blowing at intervals from these quarters during the day ; Nimbus accumulating to the E., and a few drops of rain falling at 9 P. M.

27th.—Sun obscured throughout the day. Heavy rain fell shortly after 4 P. M. from the East with a high wind, continued so for 2 hours and then suddenly lulled. Wind changing to the West for a short period about sunset, but veering again to the N. E., at 10 P. M. ; a most violent squall with heavy rain blew for 1½ hours from the West, accompanied by thunder and lightning.

28th.—Cloudy, and sun obscured for the greater part of the day ; very light and variable winds, at 8 P. M. a great storm of hail and rain, with thunder and lightning from the West, lasting about 1½ hours, winds strong from the West throughout the night.

29th.—Morning cloudy with dense fog and a strong southerly wind but gradually veering round to the West, large masses of cumuli clouds rising and passing over to the East, a clear night.

30th.—Dense fog in the morning with drizzling rain, at times clearing ; by noon a succession of cumuli clouds rising from the West throughout the day, but clearing by night.

31st.—Foggy and cloudy in the morning with a high wind from the West. Fog clearing by noon ; large masses of cumuli clouds rising from the West and passing over head ; a clear night.

Memo. of the means of observations made at Turan Mull, for the month of May, 1851.

Long. 74.34 E. Lat. 21.52 N. Alt. 3208 ft.

| Observations made at Sunrise. | | | Maximum pressure observed at 10 A. M. | | | Minimum pressure observed at 4 P. M. | | | Observations made at Sunset. | | | Observations made at 10 P. M. | | | Maximum and Minimum Thermometer. | | | Maximum Therm. in Sun's rays. | | | |
|-------------------------------|----------|-------|---------------------------------------|----------|-----------|--------------------------------------|----------|----------|------------------------------|----------|-------|-------------------------------|------------|----------|----------------------------------|-----------|----------|-------------------------------|----------|--------------|-----------------|
| Temperature. | | | Temperature. | | | Temperature. | | | Temperature. | | | Temperature. | | | | | | | | | |
| Barometer. | Mercury. | Air. | Barometer. | Mercury. | Wet Bulb. | Barometer. | Mercury. | Wet Bulb | Barometer. | Mercury. | Air. | Wet Bulb. | Barometer. | Mercury. | Air. | Wet Bulb. | Maximum. | Mean. | Minimum. | Under glass. | Freely exposed. |
| 26.76 | 70.22 | 66.88 | 26.80 | 77.48 | 64.77 | 26.76 | 86.11 | 82.43 | 26.75 | 84.45 | 82.32 | 65.33 | 26.74 | 80.74 | 77.58 | 64.82 | 85.47 | 77.78 | 70.14 | 135.25 | 115.89 |

The prevalent winds during the month, from the S. W. and W.

F. A. V. THURBURN, *Lieut.*

Notice of a collection of Mammalia, Birds, and Reptiles, procured at or near the station of Chérra Punji in the Khásia hills, north of Sylhet.—By E. BLYTH, Esq.

For an opportunity of examining a few of the animal inhabitants of the little explored Khásia hills, we are indebted to Mr. R. W. G. Frith, who, during a late visit to Chérra Punji, collected specimens of the following species, which he has brought down either living, preserved in spirit, or their prepared skins.

MAMMALIA.

PRESBYTIS PILEATUS, nobis, *J. A. S.*, XII, 174, XIII, 467, XVI, 735. Procured at Cherra Punji.

DYSOPUS PLICATUS, (B. Ham.) An example in spirit, nearly as dark-coloured as the Malayan race termed *D. TENUIS*, (Horsfield), which, we think, differs not, otherwise than in being constantly of a much darker hue than the ordinary *D. PLICATUS* of India.

NYCTICEJUS ORNATUS, nobis, *n. s.* A large and robustly formed typical species, of uncommon beauty. In colouring, it is affined to

N. TICKELLI, nobis, p. 157, *ante*; but is altogether stronger, with conspicuously larger and stronger feet, and remarkably elongated ears. It also does not possess the peculiar small flat incisor, situate posteriorly to the contact of the ordinary large upper incisor and the canine, seen in N. TICKELLI. Colour, a bright pale rusty isabelline. brown above, (the piles black for the basal fourth, then whitish, with rusty extremities,) less vivid on the lower half of the back, and somewhat paler below; a pure silky white spot on the centre of the forehead, others on each shoulder and axilla above, and a narrow stripe of the same along the middle of the back; face below the forehead deep brown, including the chin: a broad white demi-collar over the throat from ear to ear; and beneath this is a dark brown demi-collar of similar extent (passing in a narrow streak upward to the chin), and below this again a narrower pure silky white one, commencing from the shoulders—which below it are again deep brown, continued round to separate the ends of the white band below from the white axillary spot above. Membranes marked as in N. TICKELLI, or black except the interfemoral which is tawny-red, as also a portion of the lateral membranes towards the body, and the entire limbs and digits. Ear-conch elongate-oval, erect, with tragus a fourth of its length, narrow, semi-lunate, and curved to the front. Length (of an adult female) $4\frac{3}{4}$ in., of which the tail measures $1\frac{7}{8}$ in.; expanse $14\frac{1}{2}$ in.; fore-arm $2\frac{1}{4}$ in.; longest finger $3\frac{7}{8}$ in.; tibia $\frac{7}{8}$ in.; foot with claws $\frac{1}{2}$ in. Ears externally $\frac{5}{8}$ in.; tragus $\frac{1}{4}$ in. Procured at Chérra Punji.

TALPA LEUCURA, nobis, *J. A. S.* XIX, 215. Of this recently described species, Mr. Frith has brought thirty-three specimens in spirit, all true to the distinctive characters indicated. In none does the head and body exceed $4\frac{1}{2}$ in. in length. The species, however, inhabits the plain of Sylhet, and not Chérra Punji as formerly stated.

SOREX PEYROTETII (?), Duvernoy. A headless specimen, affixed to a thorn by some Shrike, as we have several times observed of the common British Shrew by LANIUS COLLURIO. Colour darker than usual; but otherwise it appears identical with specimens we have seen from various parts, as Almorah, S. India, Maulmein, &c. It is the smallest of all known mammalia.

TUPAIA FERRUGINEA, var. BELANGERI; *Tupaia de Pegu*, Lesson, *Zool. de Belanger*, t. 4; *Cladobates Belangeri*, Wagner. This race,

which abounds in Arakan and the Tenasserim provinces, merely differs from the common *T. FERRUGINEA*, Raffles, of the Malayan peninsula, in being less deeply tinged (and often not at all so) with maronne on the upper-parts; the colouring being much as in *T. JAVANICA*, but still having a decided rufous cast as compared with this little species, which likewise is common about Malacca and Singapore, though unnoticed in Dr. Cantor's list of the mammalia of the Malayan peninsula. We cannot regard *T. BELANGERI* as distinct from *T. FERRUGINEA*; and we have not previously seen it from so northern a locality as Chérra Punji, though it probably also inhabits Asám. The species of Central and Southern India, *T. ELLIOTI*, Waterhouse, is a much larger animal, equal in size to *T. TANA* (v. *CLADOBATES SPECIOSUS*, Wagner), of the Archipelago; and the only remaining species of this genus hitherto discovered is the strongly marked *T. MURINA*, (Diard), from the Western Coast of Borneo, figured by Dr. S. Müller and M. Temminck.

RHIZOMYS PRUINOSUS, nobis, *n. s.* So far as can be judged from external characters, this quite resembles *RH. BADIUS*, Hodgson, of the vicinity of Darjiling, and *RH. CASTANEUS*, nobis, *J. A. S. XII*, 1007, of Arakan, except in being very differently coloured: the fur being uniformly dusky-slate above and below, with hoary tips, which latter are of somewhat coarser texture; on the belly there is a slight silvery shade. All three differ from *RH. SUMATRENSIS* (v. *cinereus*, McClelland,) of the Tenasserim provinces and Malayan peninsula, in being much less robust, having a much shorter tail, and a dense coat of fine soft fur instead of a thin coat of bristly fur; but their structural characters are essentially the same. An example of the present race was long ago forwarded to the Society from Chérra Punji by F. Skipwith, Esq., C. S.; but we deferred describing it until seeing additional specimens. Mr. Skipwith's specimen having old and faded fur is much browner and less slaty than those obtained by Mr. Frith in newly renovated pelage; but the hoary tips are conspicuous in all. It is extremely common at Chérra Punji.

ATHERURA MACROURA? (L.; nec *Hystrix fasciculata*, Shaw): *Hystrix spicifera*, Buch. Ham., MS. The different Asiatic species of this genus remain to be fully discriminated. Mr. Waterhouse refers the Siamese race, with a terminal tail tuft of "long flattened

bristles (somewhat resembling thin and narrow strips of whale bone)," to *Hystrix fasciculata*, Shaw (v. *H. macroura*, Gervais), and he states this to inhabit "Siam and the Malayan peninsula." It is doubtless the species figured, evidently from life, by Gen. Hardwicke: but, if inhabiting the Malayan peninsula, it must co-exist there with *ATH. MACROURA*, (L.), apud Waterhouse, which has "the apex of the tail provided with a large tuft of flat bristles, which are spirally twisted, and alternately contracted and expanded." This Mr. Waterhouse gives doubtfully from Sumatra; and it is certainly the common Brush-tailed Porcupine of the Malayan peninsula. In the Chittagong, Tippera, and Khásya hills, there is a very similar race to the last, but with the spines shorter and less coarse, excepting those of the croup, the *ensemble* of the colouring greyer, and the enamel of the front-teeth pale yellow instead of deep buff or orange-yellow. On minute comparison of the skulls, the frontals of the Malayan race are seen to be somewhat larger and more convex, while the parietals are proportionally smaller, than in the Northern race: the palatal foramen, also, is narrower and advances more forward in the former; and the inferior lateral process of the superior maxillary, forming the lower border of the great ant-orbital foramen, is, in the Malayan race, given off anteriorly to the position of the first molar, while in the Northern race it abuts directly on the first molar. If distinct, it should bear the name *SPICIGERA* given to it by Buchanan Hamilton, who has excellently figured and prepared a good MS. description of it, founded on a living pair received from Chittagong. "They were brought," he was informed, "from the hills; and, so far as the donor (Mr. Macrae) understands, their habits are pretty much the same as those of the Porcupine of the plains. Both burrow in the earth, live upon roots, and are found either in pairs or families." A specimen brought from Chérra Punji by Mr. Frith corresponds exactly with Buchanan Hamilton's coloured figure.

AVES.

Of birds, the most remarkable are two new species of *GARRULAX*,—one of *SUTHORA*,—the *SIBIA GRACILIS*, (McClelland and Horsfield,) now first verified,—and *SPIZIXOS CANIFRONS*, nobis, *J. A. S. XIV*, 571. The only specimen we had previously seen of the last named species, although apparently in good order when the description of it

was taken, was soon afterwards completely destroyed by insects, from the skin not having been properly prepared with poison. Mr. Frith has now obtained a fine skin, and also an entire specimen in spirit, this bird proving to be common at Cherra Punji. Length 8 in., by $10\frac{3}{4}$ in. expanse; wing $3\frac{5}{8}$ in.

We have seen a figure of a second and crestless species of this strongly marked genus, from upper Asám.

SIBIA GRACILIS; *Hypsipetes gracilis*, McClelland and Horsfield, *Proc. Zool. Soc.* 1839, p. 159; *J. A. S.* XVI, 449. Resembles *S. CAPISTRATA* (*Cinclosoma capistratum*, Vigors, v. *S. nigriceps*, Hodgson), except that there is no rufous about it, beyond a faint tinge of this hue on the flanks and lower tail-coverts; the feathers proceeding from the lateral base of the lower mandible, also, are white, though the lores and ear-coverts are uniform black with the crown. General hue of the upper-parts dark ashy (nearly as in *S. PICOIDES*), paler on the rump and collar; below white, sullied with grey on the sides of the breast and flanks: wings and tail as in *S. CAPISTRATA*, except that the glossy margins of the secondaries are much darker, and the tertials are dark ashy margined externally with black. Bill black: feet brown, with darker toes.

GARRULAX MERULINUS, nobis, *n. s.* General colour deep olive-brown, the medial portion of the under-parts pale rufescent whitish-brown, and spotted with black on the throat and upper-part of the breast, much as in *Turdus musicus*; a narrow white streak behind the eye. Irides whitish-brown. Bill dusky-plumbeous. Legs brown, with albescent toes. Length $9\frac{1}{2}$ in.; expanse of wings 12 in.; closed wing $3\frac{1}{2}$ in.; tail $3\frac{1}{2}$ in.; bill to gape $1\frac{1}{4}$ in.; tarse $1\frac{5}{8}$ in. Common at Chérra Punji, from whence Mr. Frith has brought several living examples both of this and of the next species.

G. RUFICAPILLUS, nobis, *n. s.* Nearly affined to *G. ERYTHROCEPHALUS*, (Vigors), from which it is distinguished by having the chin and broad supercilia ash-grey; forehead greyish; throat, front of neck, and breast, rufous, with an admixture of golden-yellow on the last: no black spots on the nape and breast, but darker lunate markings in place of them: rest as in *G. ERYTHROCEPHALUS*, to which *G. CHRYSOPTERUS*, (Gould), inhabiting an intermediate range of territory, is also closely affined. Common at Chérra Punji.

SUTHORA POLIOTIS, nobis, *n. s.* Like *S. NIPALENSIS* (vide *J. A. S.* XII, plate to p. 450), but the lower ear-coverts and sides of the neck are pure ashy, paler on the breast, and passing to white on the abdomen; lores and sides of face, with the plumes growing from the base of the lower mandible, pure white: crown bright fulvous, passing to duller fulvous on the back: wings coloured as in *S. NIPALENSIS*, but the coverts of the secondaries uniformly fulvous with the back; a fulvous spot behind the eye and below the black supercilium, but no trace of rufous on the cheeks; chin black, with whitish margins, as in *S. NIPALENSIS*: bill yellowish; and feet pale. Common at Chérra Punji.

There are, accordingly, now three nearly affined races of these curious little birds, besides the larger *S. RUFICEPS* (*Chleuasicus ruficeps*, nobis, *J. A. S.* XIV, 578), which generically is barely separable.

Of the other birds collected by Mr. Frith at Chérra Punji, the only species we had not previously examined is *PTERUTHIUS MELANOTIS*, Hodgson, *J. A. S.* XVI, 448. The rest are *GECINUS CHLOROPUS*, *MEGALAIMA VIRENS*, *HARPACTES ERYTHROCEPHALUS* (in spirit), *DENDROCITTA SINENSIS*, *GARRULAX LEUCOLOPHOS*, *G. ALBOGULARIS*, *G. SQUAMATUS*, *G. PHENICEUS*, *ACTINODURA EGERTONII*, *LEIOTHRIX ARGENTAUROS*, *L. LUTEUS*, *L. CYANOUROPTERUS*, *L. CASTANICEPS*, *PARUS SPILONOTUS*, *STACHYRIS NIGRICEPS*, *ST. CHRYSÆA*, *POMATORHINUS PHAYREI* (with fine coral-orange bill), *P. RUFICOLLIS*, *ÆNICURUS MACULATUS*, *ABRORNIS SCHISTICEPS*, *PSARISOMA DALHOUSIE*, *LEUCOCERCA FUSCOVENTRIS*, *HYPSIPETES MACFELLANDII*, *HEMIXOS FLAVALA*, *IOLE VIRESCENS*, and *ORIOLOS INDICUS*. These are mostly species common in the neighbourhood of Darjiling; but *POMATORHINUS PHAYREI* and *IOLE VIRESCENS* we had previously only seen from Arakan; and *ORIOLOS INDICUS* is chiefly an inhabitant of the eastern side of the Bay of Bengal, though, as a rarity, it is now and then met with in Lower Bengal. A large proportion of the above named species are common in Arakan.

[The following descriptions of new species of birds may be here appended.]

GARRULAX (?), *JERDONI*, nobis. Resembles *G. (?) CACHINNANS*, Jerdon, except that there is no trace of rufous on the cheeks, fore-neck and breast, the black of the chin is also less developed, and the nape is of a dull ashy hue: fore-neck and breast paler ashy, passing to whitish on the ear-coverts. The medial abdominal feathers only are rufous; those of the flanks, back, wings and tail are olive as in *G. (?) CACHINNANS*, and the head, lores, and supercilia are likewise similar. The

form of the bill and the general characters of these two species, from S. India, indicate that they should form a separate division from *GARRULAX* proper. *G. BELANGERI*, Jerdon, of the Nilgiris, and *G. CINEIREIFRONS*, nobis (p. 176, ante), of Ceylon, are typical *GARRULACES*.

CISTICOLA ERYTHROCEPHALA, Jerdon. General hue rufous or ferruginous, deepest on the crown, darker on the rump, and brightish on all the lower-parts; back olive, with black medial streaks to the feathers; and wings and tail dusky, the former margined with olive-brown, and the latter very slightly tipped or margined round the extremity of the feathers, with pale brown. Legs pale. Wing $1\frac{7}{8}$ in: tail $1\frac{5}{8}$ in. This and the preceding species have just been received from Mr. Jerdon, and are, most probably, from the Nilgiris. Accordingly, three species of *CISTICOLA* will now have been ascertained from S. India and Ceylon, viz. the common *C. CURSITANS*, *C. OMALURA*, nobis (p. 176, ante), from Ceylon, and that here described.

CYORNIS ÆQUALICAUDA, nobis. Female somewhat greyish-brown above, much paler below, whitish towards the vent and on the lower tail-coverts; axillaries also whitish with a faint tinge of fulvous: tail and its upper coverts dull ferruginous, the medial rectrices and exterior webs of the rest sullied with fuscous. Bill dark above, whitish below; feet dark brown. Length about $5\frac{1}{2}$ in., of wing 3 in., and tail $2\frac{1}{4}$ in.: bill to gape $1\frac{1}{8}$ in.; and tarse $\frac{5}{8}$ in. A well marked distinct species, procured by Lieut. James, of the 28th B. N. I., in Kunáwar.

SAXICOLA FUSCA, nobis. Evidently a new species of true Wheatear, affined in colouring to *S. INFUSCATA*, A. Smith; but the general colour deeper, and the head, cheeks, and throat, rufescent: tail also remarkably long, for a species of this genus. We can only describe the fragments of a specimen, viz. the head, wings, tail, and legs. Wing $3\frac{3}{4}$ in.; tail 3 in.: bill to gape $\frac{7}{8}$ in.; From Muttra.]

REPTILIA.

Of this class, Mr. Frith brought five species, as follow:—

1. *PLATYDACTYLUS GECKO*, (L.), vide *J. A. S.* XVII, 623. Collected at Dacca, the only part of Bengal in which we are aware of its occurrence. This reptile is common in Asám, Sylhet, Arakan, the Tenasserim provinces and Malayan peninsula.

2. *CALOTES*——? 3. *EUPREPIS*——? 4. *POLYPEDATES*——? Apparently three new species, from Chérra Punji; which we defer describing for the present, as we have numerous other new reptiles which it will be more convenient to describe together.

5. *TRIGONOCEPHALUS GRAMINEUS*, (Shaw). Young, 13 in. long, of the Malayan variety with defined whitish lateral line. From Sylhet. This small individual had bitten a labouring man, but the wound merely caused a painful swelling in the arm, which, however, did not prevent the patient from returning to his work after a few hours; *i. e.* in the afternoon of the day during which he was bitten in the course of the morning. This agrees with the remarks upon the venom of three species of *TRIGONOCEPHALUS* in *J. A. S. XVI*, 1044 *et seq.**

[We may here describe the following remarkable Bat, purchased with a miscellaneous collection made at Darjiling.

LASIURUS PEARSONII, Horsfield.† Length about $3\frac{1}{2}$ in., of which the tail measures $1\frac{1}{4}$ in., having its extreme tip exerted. Head $\frac{3}{4}$ in. Ears (posteriorly) $\frac{1}{2}$ in.; and about $1\frac{1}{2}$ in. from tip to tip. Expanse about 13 in. Fore-arm $1\frac{7}{8}$ in.: tarse $\frac{3}{4}$ in. Head broad and short: the ears broad, subovate, widely separated apart; and the tragus small, narrow and elongated. Teeth very robust; the grinders antero-posteriorly compressed, with the *carnassiez* contiguous to the canine above and below, and the canines less elongated than in the *NYCTICEJI*: there are four incisors above, of which the outer or lateral are much smaller than the others. Fur soft and extremely dense, of a uniform rufous-brown above and dingy greyish below, with conspicuous hoary tips a little curling, more especially upon the head, shoulders, and breast. The membranes are dusky, and the alar is attached to the base of the outer hind-toe. The lateral membranes near the body, and the whole interfemoral, are somewhat plentifully covered with brownish-rufous fur, more scant on the interfemoral, and very dense at the base of the tail above, being continued throughout its length, and also along the hind-limbs, with the feet and calcanea. Excepting in having two pairs of upper incisors, this species seems to agree generically with the *LASIURI*, Rafin., of N. America, or *VESPRUINOSUS* and *V. RUFUS* (*v. noveboracensis*), auctorum].

* *Notes by Mr. Frith.* "The man was bitten, as above mentioned, at about 10 A. M.; and when I saw him, at about 4 P. M., he was at his work, and the swelling (which had been somewhat considerable) had by that time almost subsided.

"As regards *Talpa leucura* (p. 518), I do not say that it may not inhabit the valleys or lower lands of Chérra, that is to say, at the foot of the hills. The Khásias state that they never met with it there; but some of them at once recognised the animal as being like one found about two or three days' distance in the interior, but which they stated to be of a white colour."

We should here add that Mr. Frith has favoured the Society with a free selection from the above interesting collection.

† Since the above description had gone to press, we have received Dr. Horsfield's Catalogue of the Mammalia in the Hon. Company's museum, in which we find ourselves forestalled as regards the specific name.

A letter from EDWARD THOMAS, Esq. C. S. On Sassanian Coins.

MY DEAR DR. SPRENGER.—I send you herewith a wood-cut of a Coin I wish you to insert in the next number of the Journal of the Asiatic Society, with a view to soliciting the aid of your numismatic supporters in contributing impressions of any similar specimens to be found in their cabinets.

The subject of Sassanian influence in India, its epoch, and the boundaries over which Zoroastrian belief extended, is fraught with high interest in itself, but it possesses an enhanced claim upon our attention in the light it promises to throw upon the anterior, or Scythic, period of Indian history.

Up to this time, we have but scant materials, either legendary or monumental, whereby to illustrate the first named question, and we dare scarcely hope that Numismatic Science can do much to *help* our cause, as the number and variety of Indo-Sassanian Coins is clearly limited. The piece about to be described, however, places us a material step in advance, and Indian Annals have already received such great and un-hoped for elucidation from this section of Antiquarian research, that we have a right even here to augur well for our future.

The Coin of which the accompanying engraving is a facsimile, presents us with a strictly Rajpút name impressed upon the surface of a piece of money of a purely Sassanian type. I will not at present venture into the ample field of speculation this association opens out, but content myself with noticing the bare fact, trusting that your call for new specimens, may succeed in drawing forth from dark-corners, other coins of this class, thus securing an extended circle

of medallie data, from which to deduce more comprehensive and legitimate inferences than the evidence of a single piece admits of.

The coin under review was obtained by Major Nuthall of the Commissariat Department during a late march to Pesháwur. It is of silver, and weighs 52 grains. The *Obverse*, here represented,* bears the name of



* The original is in imperfect preservation, especially as regards the neck of the figure—I have left the letters composing the legend unshaded, in order to render more exactly their true form.

राजा पम—उदयादित्य
Rájá Pam? Udayáditya.

The *Reverse* surface presents a mere blank, retaining *only* slight traces of ever having received an impression.

As connected with the general subject of Indo-Sassanian Numismatics, your readers may not be uninterested to learn the progress made of late years in Europe in the decipherment of Pehlvi Legends, in so far as concerns the interpretation of the writings on the Sassanian Coins exhumed from the Topes of the Punjáb and Afghánistán, which are moreover so closely identified with the progress of our Journal, whose pages contain the earliest notice of these Antiquities, and whose plates display a still unrivalled series of delineations of the various relics disinterred by Messrs. Ventura and Court.

Pl. XXI. Vol. III. Fig. 8. *Journ. Asiat. Soc. Beng.*

OBVERSE in Pehlvi Characters—

behind the head, ^{افزوت} Increase

in front of the face, { ^{افدولا}
literally, { ^{هزمان} } for

^{عبد الله حازمان} Abdullah-i-Házimán, or Abdullah the son of Házim.

MARGIN. ^{بسم الله} in Kufic letters. "

REVERSE. On the left, ^{شش شست} (A. II.) 64.

on the right, ^{مرو} Merv.

Pl. XXI. Fig. 10. Obv. in front of the face, a Scythic? legend.

MARGIN. ^{ओहिति विर ऐरलाव परमेश्वर}

possible variants ^{च ख च}

(continued) ^{ओषहिति ण तदेष नारित}

variants ^{च च क}

REVERSE. Left ^{سف ندسف نیف}

Right ^{نكهون خراسان ملكا}

The Coin engraved as No. 6, Pl. XXV. Vol. III. J. A. S. B. is so closely identified with the *Tope* Indo-Sassanian specimens, that it may be as well to complete this portion of the subject, by giving the latest reading of its Pehlvi legends.

OBVERSE. *Left* श्रीवाषुदेवः

Right (literal transcript,) پنهچاي داولستان

MARGIN. سفر or سپر نرمانشان

REVERSE. *Right* صف ورسوتيف

MARGIN. *پون شمي دات صف ورساوتيف وهمان از ملتان ملکا

It is necessary to add, that the above are mere tentative readings, the decipherment of the Coin of Abdullah Hájim, which is beyond dispute, being the single exception.

With an Alphabet so imperfect as the Ancient Persian—Sassanian Pehlvi—consisting of 17 literal signs only, convertible largely among themselves, and subjected to considerable variation in provincial value, expressing too a language, the very rudiments of which are but partially known to us, no interpretation however well wrought out *per se*, can be said to stand good until affirmed by some valid extraneous evidence.

My object indeed in publishing such crude readings is to court criticism, with a sincere view to just correction, but further to give your readers an idea of what the Pehlvi Alphabet is reproachable with, apart from the difficulty of the language it conveys or the imperfection of the expression of its Letters. I may mention that the sign 𐭥 stands avowedly for 𐭥, 𐭥, 𐭥, 𐭥, and 𐭥, and is at times undistinguishable from the nearly similarly outlined form of the same Alphabet which corresponds with the modern 𐭥 𐭥 and 𐭥 have usually one sign in common as also have the still more puzzling pair 𐭥 and 𐭥 their ancient representative also serving to express the silent final.

And, as a pertinent instance of provincial irregularities, I would cite, the entire disuse of the character 𐭥=𐭥 in all Indo-Sassanian coin-legends, that letter being replaced by the 𐭥, answering to the Sanscrit व, V.

But I must not say too much of the obstacles to be encountered in the study of Ancient Persian, or I may chance to deter many otherwise willing scholars from attempting the pursuit of this important branch of Archæological research.

Yours, &c.

Simlah, October 17, 1851.

EDWARD THOMAS.

* In nomine justi judicis. "Anquetil."

Monthly Means of Maximum and Minimum Pressures, for Ten Years, 1840 to 1849, taken from the Meteorological Register kept at the Surveyor General's Office Calcutta.

Lat. 22° 33' 28" 33 N. Long. 88° 23' 42" 84 E.

| Months. | 1840. | | | | | | 1841. | | | | | |
|------------------|---|-------------|-------------|--------------------------------------|-------------|----------------------------|---|-------------|-------------|--------------------------------------|-------------|----------------------------|
| | Maximum Pressure observed at 9. 50. A. M. | | | Minimum Pressure observed at 4 P. M. | | | Maximum Pressure observed at 9. 50. A. M. | | | Minimum Pressure observed at 4 P. M. | | |
| | Barometer. | Of the Mer. | Of the Air. | Of the Mer. | Of the Air. | Of an Evaporating surface. | Barometer. | Of the Mer. | Of the Air. | Of the Mer. | Of the Air. | Of an Evaporating surface. |
| | Inches. | ° | ° | ° | ° | ° | Inches. | ° | ° | ° | ° | ° |
| January, | 30.090 | 63.3 | 73.6 | 72.4 | 79.6 | 70.4 | 29.999 | 72.4 | 79.6 | 70.4 | 74.2 | 66.1 |
| February, | .020 | 74.5 | 78.8 | 77.5 | 85.4 | 75.4 | .915 | 77.5 | 85.4 | 75.4 | 80.2 | 71.7 |
| March, | 29.944 | 82.2 | 86.2 | 86.2 | 94.3 | 82.6 | .852 | 86.2 | 94.3 | 82.6 | 83.8 | 76.2 |
| April, | .816 | 85.4 | 90.1 | 88.4 | 94.8 | 83.5 | .721 | 88.4 | 94.8 | 83.5 | 89.2 | 82.2 |
| May, | .768 | 85.4 | 88.7 | 87.8 | 91.2 | 84.4 | .697 | 87.8 | 91.2 | 84.4 | 85.5 | 83.6 |
| June, | .652 | 84.0 | 86.2 | 85.0 | 87.4 | 83.2 | .581 | 85.0 | 87.4 | 83.2 | 86.4 | 84.8 |
| July, | .650 | 84.6 | 87.2 | 85.2 | 86.6 | 83.1 | .581 | 85.2 | 86.6 | 83.1 | 86.2 | 83.0 |
| August, | .663 | 83.1 | 84.7 | 83.7 | 84.1 | 81.8 | .594 | 83.7 | 84.1 | 81.8 | 83.9 | 82.8 |
| September, | .763 | 83.6 | 86.3 | 84.7 | 86.6 | 82.5 | .687 | 84.7 | 86.6 | 82.5 | 84.5 | 83.3 |
| October, | .927 | 82.8 | 87.7 | 85.2 | 89.4 | 80.7 | .851 | 85.2 | 89.4 | 80.7 | 87.9 | 83.4 |
| November, | 30.008 | 75.5 | 80.7 | 78.1 | 83.9 | 75.1 | .915 | 78.1 | 83.9 | 75.1 | 81.6 | 75.2 |
| December, | .994 | 69.0 | 74.0 | 72.1 | 79.0 | 79.5 | .930 | 72.1 | 79.0 | 79.5 | 73.9 | 67.4 |

Monthly Means of Maximum and Minimum Pressures, for 1842 and 1843, taken from the Meteorological Register kept at the Surveyor General's Office, Calcutta.
 Lat. 22° 33' 28". 33 N. Long. 88° 23' 42". 84 E.

| Months. | 1842. | | | | | | | 1843. | | | | | | |
|----------------------|---|-------------|-------------|------------------------------|--------------------------------------|-------------|-------------|---|-------------|-------------|------------------------------|--------------------------------------|-------------|-------------|
| | Maximum Pressure observed at 9. 50. A. M. | | | | Minimum Pressure observed at 4 P. M. | | | Maximum Pressure observed at 9. 50. A. M. | | | | Minimum Pressure observed at 4 P. M. | | |
| | Barometer. | Of the Mer. | Of the Air. | Of an Evapo- rating surface. | Barometer. | Of the Mer. | Of the Air. | Barometer. | Of the Mer. | Of the Air. | Of an Evapo- rating surface. | Barometer. | Of the Mer. | Of the Air. |
| | Inches. | ° | ° | ° | Inches. | ° | ° | Inches. | ° | ° | ° | Inches. | ° | ° |
| January, | 29.976 | 70.6 | 75.3 | 68.4 | 29.902 | 75.2 | 83.1 | 29.987 | 68.9 | 72.1 | 66.9 | 29.892 | 71.8 | 77.8 |
| February, | .940 | 74.9 | 80.0 | 72.0 | .848 | 80.7 | 89.3 | .885 | 74.4 | 77.7 | 72.7 | .795 | 77.3 | 85.1 |
| March, | .825 | 79.7 | 82.7 | 78.1 | .742 | 84.1 | 90.2 | .829 | 79.5 | 83.4 | 76.6 | .750 | 83.0 | 90.3 |
| April, | .743 | 85.7 | 89.5 | 84.0 | .655 | 90.2 | 95.4 | .811 | 83.3 | 88.0 | 81.9 | .711 | 87.5 | 94.6 |
| May, | .665 | 87.3 | 91.8 | 86.2 | .586 | 90.2 | 94.0 | .686 | 85.4 | 89.4 | 83.7 | .610 | 87.8 | 93.1 |
| June, | .489 | 82.9 | 83.3 | 80.8 | .418 | 84.3 | 84.4 | .554 | 85.1 | 88.3 | 83.4 | .492 | 87.8 | 91.5 |
| July, | .485 | 84.6 | 86.5 | 83.5 | .421 | 85.8 | 87.0 | .554 | 83.6 | 87.5 | 83.3 | .495 | 84.0 | 86.5 |
| August, | .597 | 83.3 | 84.9 | 82.7 | .535 | 84.4 | 85.1 | .606 | 82.9 | 86.1 | 82.4 | .541 | 84.2 | 86.9 |
| September, | .685 | 84.1 | 85.6 | 83.1 | .608 | 85.8 | 86.3 | .698 | 83.3 | 87.0 | 82.9 | .625 | 84.2 | 86.4 |
| October, | .821 | 82.1 | 84.1 | 79.1 | .750 | 83.9 | 86.4 | .915 | 80.9 | 85.6 | 80.0 | .839 | 83.2 | 86.1 |
| November, | .915 | 76.1 | 79.2 | 72.1 | .841 | 78.4 | 82.5 | .944 | 75.5 | 78.5 | 73.3 | .861 | 78.9 | 82.1 |
| December, | .979 | 71.1 | 74.3 | 68.9 | .889 | 74.0 | 78.2 | .930 | 68.8 | 71.2 | 67.2 | .923 | 72.3 | 75.5 |

Monthly Means of Maximum and Minimum Pressures, for 1844 and 1845, taken from the Meteorological Register kept at the Surveyor General's Office, Calcutta.

Lat 22° 33' 28". 33 N. Long. 88° 23' 42". 84 E.

| Months. | 1844. | | | | | | | | | | 1845. | | | | | | | | | |
|------------------|---|-------------|-------------|------------------------------|------------|--------------------------------------|-------------|------------------------------|------------|-------------|---|------------------------------|------------|-------------|-------------|--------------------------------------|------------|-------------|-------------|------------------------------|
| | Maximum Pressure observed at 9. 50. A. M. | | | | | Minimum Pressure observed at 4 P. M. | | | | | Maximum Pressure observed at 9. 50. A. M. | | | | | Minimum Pressure observed at 4 P. M. | | | | |
| | Barometer. | Of the Mer. | Of the Air. | Of an Evapo- rating surface. | Barometer. | Of the Mer. | Of the Air. | Of an Evapo- rating surface. | Barometer. | Of the Mer. | Of the Air. | Of an Evapo- rating surface. | Barometer. | Of the Mer. | Of the Air. | Of an Evapo- rating surface. | Barometer. | Of the Mer. | Of the Air. | Of an Evapo- rating surface. |
| | Inches. | ° | ° | ° | Inches. | ° | ° | ° | Inches. | ° | ° | ° | Inches. | ° | ° | ° | Inches. | ° | ° | ° |
| January, | 29.996 | 68.1 | 70.3 | 66.4 | 29.907 | 72.2 | 77.9 | 71.1 | 30.206 | 70.1 | 70.9 | 68.2 | 30.102 | 77.6 | 81.6 | 72.6 | | | | |
| February, | .973 | 72.4 | 74.1 | 70.3 | .879 | 78.7 | 81.6 | 75.4 | .066 | 73.3 | 74.6 | 65.6 | 29.936 | 83.4 | 82.2 | 67.3 | | | | |
| March, | .849 | 81.4 | 84.3 | 79.3 | .762 | 87.1 | 92.6 | 83.3 | 29.962 | 83.0 | 85.6 | 72.4 | .829 | 93.6 | 93.0 | 71.3 | | | | |
| April, | .713 | 86.1 | 89.2 | 83.8 | .646 | 90.1 | 93.8 | 86.0 | .816 | 85.7 | 87.1 | 78.9 | .690 | 89.7 | 89.0 | 79.1 | | | | |
| May, | .610 | 85.8 | 88.0 | 85.1 | .524 | 89.0 | 90.1 | 86.4 | .697 | 90.5 | 90.6 | 81.3 | .581 | 93.0 | 92.4 | 80.3 | | | | |
| June, | .681 | 86.4 | 87.0 | 84.5 | .589 | 88.8 | 88.9 | 85.7 | .588 | 87.5 | 88.0 | 81.5 | .483 | 89.6 | 89.2 | 81.6 | | | | |
| July, | .712 | 84.6 | 84.8 | 83.3 | .625 | 85.8 | 85.4 | 83.9 | .563 | 86.0 | 86.1 | 80.9 | .482 | 88.4 | 87.3 | 81.2 | | | | |
| August, | .715 | 84.0 | 84.6 | 83.3 | .622 | 84.8 | 84.7 | 83.4 | .562 | 85.1 | 85.5 | 80.6 | .472 | 86.2 | 85.8 | 80.4 | | | | |
| September, | .891 | 84.3 | 86.4 | 84.3 | .789 | 86.3 | 86.4 | 84.3 | .781 | 87.1 | 87.8 | 80.6 | .671 | 88.6 | 88.4 | 79.1 | | | | |
| October, | 30.025 | 82.1 | 83.9 | 82.2 | .924 | 84.8 | 85.5 | 83.5 | .865 | 84.3 | 84.8 | 77.0 | .751 | 86.0 | 86.4 | 75.6 | | | | |
| November, | .152 | 77.0 | 80.4 | 77.2 | 30.046 | 80.9 | 83.8 | 80.6 | 30.071 | 78.5 | 79.1 | 69.5 | .959 | 83.5 | 81.9 | 68.1 | | | | |
| December, | .173 | 70.2 | 72.9 | 69.1 | .063 | 75.4 | 79.0 | 74.6 | .076 | 71.0 | 71.8 | 63.9 | .959 | 79.6 | 75.5 | 64.5 | | | | |

Monthly Means of Maximum and Minimum Pressures, for 1846 and 1847, taken from the Meteorological Register kept at the Surveyor General's Office, Calcutta.
 Lat. 22° 33' 28". 33 N. Long. 88° 23' 42". 84 E.

| Months. | 1846. | | | | | | | 1847. | | | | | | |
|-----------------|---|-------------|--------|-------------|--------------|--------------------------------------|-------------|---|-------------|--------------|--------------------------------------|-------------|--------|-------------|
| | Minimum Pressure observed at 9. 50. A. M. | | | | | | | Maximum Pressure observed at 9. 50. A. M. | | | | | | |
| | Barometer reduced to 32° Fahrenheit. | Of the Mer. | cury. | Of the Air. | Of Wet Bulb. | Barometer reduced to 32° Fahrenheit. | Of the Mer. | cury. | Of the Air. | Of Wet Bulb. | Barometer reduced to 32° Fahrenheit. | Of the Mer. | cury. | Of the Air. |
| January, | Inches 30.139 | ° 71.9 | ° 72.8 | ° 72.8 | ° 65.7 | Inches 30.016 | ° 79.8 | ° 78.5 | ° 66.2 | ° 66.2 | Inches 30.026 | ° 70.5 | ° 71.2 | ° 62.8 |
| February, | .078 | 73.9 | 74.7 | 74.7 | 67.6 | 29.955 | 80.4 | 79.1 | 68.6 | 65.1 | .038 | 72.1 | 73.0 | 65.1 |
| March, | 29.922 | 83.9 | 84.6 | 84.6 | 75.6 | .794 | 91.8 | 91.6 | 75.2 | 73.4 | 29.942 | 83.6 | 84.6 | 73.4 |
| April, | .827 | 89.4 | 90.1 | 90.1 | 79.0 | .695 | 95.0 | 94.6 | 79.0 | 80.1 | .811 | 88.2 | 87.6 | 80.1 |
| May, | .726 | 89.7 | 89.9 | 89.9 | 81.0 | .606 | 93.9 | 93.6 | 81.6 | 81.8 | .703 | 70.5 | 89.5 | 81.8 |
| June, | .626 | 87.6 | 86.2 | 86.2 | 81.6 | .529 | 88.1 | 88.1 | 81.1 | 81.8 | .585 | 89.1 | 87.5 | 81.8 |
| July, | .607 | 85.9 | 86.2 | 86.2 | 81.2 | .522 | 86.7 | 86.6 | 81.0 | 81.9 | .591 | 86.8 | 85.8 | 81.9 |
| August, | .603 | 86.2 | 86.0 | 86.0 | 81.4 | .512 | 86.9 | 86.8 | 81.3 | 81.5 | .630 | 86.6 | 86.3 | 81.5 |
| September, .. | .676 | 85.1 | 85.6 | 85.6 | 80.7 | .570 | 85.9 | 85.7 | 80.7 | 80.0 | .704 | 87.5 | 86.3 | 81.1 |
| October, | .849 | 83.0 | 83.4 | 83.4 | 78.7 | .737 | 84.0 | 84.1 | 78.7 | 78.6 | .920 | 84.3 | 83.9 | 78.6 |
| November, | 30.011 | 79.3 | 80.0 | 80.0 | 72.2 | .902 | 82.9 | 81.7 | 71.3 | 69.2 | 30.008 | 77.6 | 77.5 | 70.5 |
| December, | .082 | 70.4 | 70.8 | 70.8 | 65.7 | .968 | 76.3 | 74.9 | 64.1 | 63.9 | .047 | 69.6 | 70.2 | 63.0 |

Monthly Means of Maximum and Minimum Pressures, for 1848 and 1849, taken from the Meteorological Register kept at the Surveyor General's Office, Calcutta.
 Lat. 22° 33' 28". 33 N. Long. 88° 23' 42". 84 E.

| Months. | 1848. | | | | | | | 1849. | | | | | | | |
|----------------------|---|-------------|-------------|--------------|--------------------------------------|-------------|-------------|---|-------------|-------------|--------------|--------------------------------------|-------------|-------------|--------------|
| | Maximum Pressure observed at 9. 50. A. M. | | | | Minimum Pressure observed at 4 P. M. | | | Maximum Pressure observed at 9. 50. A. M. | | | | Minimum Pressure observed at 4 P. M. | | | |
| | Barometer reduced to 32° | Of the Mer. | Of the Air. | Of Wet Bulb. | Barometer reduced to 32° | Of the Mer. | Of the Air. | Barometer reduced to 32° | Of the Mer. | Of the Air. | Of Wet Bulb. | Barometer reduced to 32° | Of the Mer. | Of the Air. | Of Wet Bulb. |
| January, | Inches. | ° | ° | ° | Inches. | ° | ° | Inches. | ° | ° | ° | Inches. | ° | ° | ° |
| February, | 30.071 | 68.0 | 69.3 | 60.4 | 29.929 | 78.7 | 77.3 | 60.8 | 30.114 | 67.7 | 68.4 | 61.1 | 29.989 | 77.0 | 75.3 |
| March, | .054 | 74.7 | 75.2 | 66.5 | .907 | 85.8 | 84.6 | 67.8 | .027 | 73.7 | 74.0 | 67.2 | .880 | 82.6 | 81.2 |
| April, | 29.899 | 83.8 | 83.7 | 75.1 | 7.58 | 94.0 | 92.6 | 75.1 | 29.924 | 83.0 | 83.0 | 73.8 | .794 | 91.5 | 90.0 |
| May, | .782 | 89.5 | 89.1 | 80.0 | .651 | 94.1 | 92.7 | 80.5 | .779 | 90.0 | 89.4 | 79.5 | .634 | 97.0 | 95.2 |
| June, | .702 | 91.4 | 90.6 | 81.5 | .571 | 95.6 | 93.9 | 81.4 | .691 | 90.6 | 90.0 | 81.6 | .564 | 95.2 | 93.0 |
| July, | .563 | 88.6 | 87.4 | 81.7 | .469 | 88.7 | 87.3 | 81.4 | .603 | 88.3 | 87.2 | 81.2 | .501 | 90.2 | 88.9 |
| August, | .575 | 88.0 | 86.9 | 81.8 | .481 | 88.2 | 87.1 | 81.4 | .624 | 87.9 | 86.6 | 81.1 | .531 | 89.2 | 88.0 |
| September, | .623 | 86.3 | 85.5 | 80.9 | .520 | 87.5 | 86.6 | 81.0 | .639 | 86.8 | 85.8 | 81.1 | .533 | 87.1 | 85.9 |
| October, | .766 | 88.2 | 87.0 | 80.7 | .661 | 88.7 | 87.2 | 79.8 | .704 | 89.0 | 87.3 | 81.3 | .590 | 87.6 | 86.1 |
| November, | .938 | 84.3 | 83.6 | 76.8 | .825 | 87.6 | 85.9 | 75.5 | .906 | 85.5 | 85.1 | 78.1 | .789 | 86.9 | 85.5 |
| December, | 30.068 | 78.0 | 77.9 | 69.9 | .948 | 83.1 | 81.4 | 69.3 | 30.028 | 79.8 | 80.0 | 71.7 | .903 | 85.7 | 84.1 |
| | .086 | 73.6 | 74.1 | 67.5 | .957 | 80.8 | 79.0 | 67.2 | .088 | 68.1 | 68.7 | 62.0 | .967 | 75.3 | 73.9 |

Abstract of Meteorological Mean Monthly Summaries for ten years, 1841 to 1850.

| Months. | Monthly Mean Temperature Fahrenheit. | | | Atmospheric Variation. | | Rain Gauge. | Remarks. |
|----------------|--------------------------------------|-------------------------|------------|--|--|------------------|----------|
| | Minimum at Sunrise. | Maximum at 2. 40. P. M. | At Sunset. | Maximum Pressure in Inches reduced to 32°. | Minimum Pressure in Inches reduced to 32°. | Rain in. Inches. | |
| January, | ° 59.6 | ° 79.2 | ° 74.0 | ° 30.055 | ° 29.947 | ° 0.71 | |
| February, | 64.2 | 84.2 | 78.1 | .015 | .899 | 0.71 | |
| March, | 72.3 | 92.3 | 85.1 | 29.896 | .783 | 0.13 | |
| April, | 78.3 | 95.0 | 87.6 | .794 | .677 | 2.57 | |
| May, | 80.3 | 94.1 | 87.6 | .694 | .592 | 4.56 | |
| June, | 80.9 | 89.3 | 85.1 | .577 | .459 | 12.88 | |
| July, | 80.6 | 87.8 | 84.1 | .576 | .497 | 14 12 | |
| August, | 80.3 | 86.9 | 83.5 | .629 | .541 | 16.08 | |
| September, .. | 80.3 | 87.7 | 84.1 | .733 | .635 | 9.76 | |
| October, | 76.7 | 87.2 | 83.0 | .908 | .805 | 4.98 | |
| November, .. | 67.5 | 83.9 | 78.9 | 30.010 | .909 | 0.85 | |
| December, .. | 60.0 | 78.5 | 73.5 | .059 | .951 | 0.52 | |
| Mean, | 73.4 | 87.3 | 82.1 | 29.829 | 29.727 | 5.66 | |

Abstract of Meteorological Mean Annual Summaries for ten years, 1841 to 1850.

| Years. | Annual Mean Temperature Fahrenheit. | | | Atmospheric Variations. | | Rain Gauge. | Remarks. |
|-------------|-------------------------------------|-----------------|------------|---|---|-----------------|----------|
| | At Sunrise. | At 2. 40. P. M. | At Sunset. | Maximum Pressure in Inches reduced to 32° | Minimum Pressure in Inches reduced to 32° | Rain in Inches. | |
| 1841, | 72.7 | 89.0 | 82.4 | 29.779 | 29.707 | 60.24 | |
| 42, | 73.3 | 88.0 | 82.1 | .760 | .683 | 76.08 | |
| 43, | 73.3 | 87.6 | 82.5 | .790 | .711 | 64.32 | |
| 44, | 72.7 | 87.6 | 82.3 | .874 | .779 | 73.92 | |
| 45, | 73.7 | 86.9 | 82.3 | .854 | .743 | 60.96 | |
| 46, | 74.3 | 86.3 | 81.9 | .845 | .734 | 76.44 | |
| 47, | 73.2 | 86.1 | 81.1 | .833 | .638 | 72.36 | |
| 48, | 74.1 | 87.4 | 82.5 | .844 | .723 | 58.68 | |
| 49, | 73.6 | 86.7 | 81.8 | .844 | .723 | 70.56 | |
| 50, | 73.1 | 86.1 | 81.4 | .864 | .745 | 56.28 | |
| Mean, | 73.4 | 87.2 | 82.0 | 29.829 | 29.719 | 66.97 | |

| Date. | Observations made at Sun-rise. | | | | | Maximum Pressure observed at 9h. 30m. | | | | | Observations made at Apparent Noon. | | | | |
|-------|--------------------------------|---------|---------|----------|-----------------------|---------------------------------------|---------|---------|----------|-----------------------|-------------------------------------|---------|---------|----------|------------------------|
| | Temperature. | | Wind. | | Aspect of Sky. | Temperature. | | Wind. | | Aspect of Sky. | Temperature. | | Wind. | | Aspect of Sky. |
| | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | |
| 1 | Inches 29.492 | 80.7 | 80.9 | 79.8 | Cirro-strati | Inches 29.530 | 86.2 | 87.0 | 81.4 | Cumulo-strati | Inches 29.496 | 89.0 | 89.8 | 81.3 | E. N. E. Cumulo-strati |
| 2 | .497 | 82.0 | 82.3 | 80.4 | Scattered-clouds | .529 | 87.2 | 87.8 | 82.2 | Ditto | .521 | 88.2 | 87.6 | 83.4 | N. N. E. Cloudy |
| 3 | .493 | 82.0 | 82.2 | 80.8 | Ditto | .523 | 87.2 | 87.8 | 82.2 | Ditto | .483 | 88.2 | 88.6 | 82.7 | N. N. E. Ditto |
| 4 | .418 | 81.6 | 82.0 | 81.0 | Cloudy | .462 | 84.2 | 84.0 | 82.3 | Nimbi | .465 | 87.4 | 88.4 | 81.8 | E. S. E. Cumulo-strati |
| 5 | .531 | 80.4 | 80.6 | 79.2 | Cirro-strati | .582 | 84.6 | 85.2 | 82.1 | Cumulo-strati | .559 | 87.2 | 87.2 | 80.8 | S. S. E. Cloudy |
| 6 | .543 | 81.8 | 81.8 | 80.2 | Scattered-clouds | .592 | 82.5 | 83.2 | 81.3 | Nimbi | .556 | 82.8 | 82.5 | 80.6 | S. E. Ditto |
| 7 | .573 | 81.0 | 81.0 | 79.8 | Raining | .605 | 82.2 | 83.7 | 82.4 | Cloudy | .588 | 86.0 | 86.7 | 83.0 | S. Ditto |
| 8 | .601 | 80.3 | 81.0 | 80.2 | Cloudy | .646 | 84.9 | 86.3 | 83.3 | Ditto | .622 | 86.3 | 86.9 | 82.6 | S. Ditto |
| 9 | .589 | 82.0 | 82.2 | 80.4 | Cirro-cumul | .645 | 85.8 | 87.0 | 81.6 | S. S. W. Cirro-cumuli | .628 | 88.0 | 88.5 | 80.3 | S. W. Cirro-cumuli |
| 10 | .601 | 81.0 | 81.3 | 79.7 | Cloudy | .687 | 85.3 | 86.0 | 81.6 | Cloudy | .648 | 86.5 | 87.4 | 81.5 | W. Cloudy |
| 11 | .621 | 81.7 | 82.3 | 81.4 | Cirro-cumul | .683 | 86.7 | 87.6 | 82.2 | Cirro-cumuli | .647 | 88.6 | 90.0 | 84.0 | S. S. W. Cumulo-strati |
| 12 | .605 | 82.0 | 82.3 | 81.0 | Cirro-strati | .633 | 87.0 | 88.0 | 83.0 | Cumulo-strati | .604 | 89.2 | 89.6 | 83.4 | W. N. W. Ditto |
| 13 | .564 | 82.4 | 82.5 | 81.0 | Scattered-clouds | .568 | 85.8 | 86.4 | 82.4 | Ditto | .548 | 88.8 | 89.5 | 83.2 | W. N. W. Cumuli |
| 14 | .586 | 82.8 | 83.0 | 81.2 | Ditto | .578 | 86.6 | 88.2 | 81.3 | Cirro-strati | .565 | 90.2 | 91.7 | 84.0 | N. W. Cloudy |
| 15 | .669 | 80.2 | 80.5 | 78.7 | Raining | .671 | 83.3 | 84.5 | 81.3 | Cloudy | .682 | 87.3 | 88.0 | 82.6 | N. E. Cumulo-strati |
| 16 | .702 | 80.4 | 80.9 | 80.0 | Cloudy | .719 | 83.9 | 85.3 | 82.2 | Cumulo-strati | .739 | 86.0 | 86.7 | 82.0 | S. S. W. Ditto |
| 17 | .722 | 81.9 | 81.2 | 80.8 | Overcast | .749 | 83.6 | 84.3 | 81.0 | Cloudy | .704 | 88.7 | 89.6 | 83.0 | S. S. W. Cloudy |
| 18 | .722 | 81.3 | 81.7 | 80.4 | Cloudy | .738 | 86.4 | 87.4 | 82.2 | Cirro-strati | .697 | 86.3 | 86.8 | 82.2 | S. W. Cumulo-strati |
| 19 | .692 | 81.3 | 81.7 | 80.4 | Ditto | .722 | 83.8 | 85.0 | 82.2 | Cloudy | .693 | 86.0 | 86.4 | 82.4 | S. Cumulo-strati |
| 20 | .672 | 80.4 | 81.0 | 79.8 | S. S. E. Ditto | .717 | 83.6 | 84.4 | 81.4 | Cumulo-strati | .724 | 86.8 | 87.0 | 81.6 | S. Ditto |
| 21 | .706 | 78.8 | 79.0 | 78.3 | Raining | .753 | 83.7 | 85.0 | 81.0 | Ditto | .716 | 88.2 | 89.3 | 81.2 | E. N. E. Ditto |
| 22 | .696 | 80.4 | 80.6 | 79.7 | S. S. E. Cirro-strati | .732 | 85.6 | 87.0 | 81.9 | Ditto | .694 | 87.4 | 87.6 | 81.7 | S. E. Ditto |
| 23 | .689 | 81.0 | 81.3 | 81.0 | Ditto | .724 | 84.2 | 86.0 | 81.6 | Ditto | .689 | 87.0 | 87.5 | 81.5 | S. E. Cloudy |
| 24 | .660 | 80.4 | 80.6 | 80.0 | Scattered-clouds | .756 | 84.2 | 86.0 | 82.2 | Ditto | .731 | 86.0 | 86.8 | 82.5 | S. E. Cumulo-strati |
| 25 | .707 | 80.7 | 81.0 | 80.0 | Cirro-cumul | .703 | 85.8 | 87.0 | 80.8 | Ditto | .663 | 87.0 | 87.5 | 81.8 | S. S. W. Nimbi |
| 26 | .699 | 80.2 | 80.6 | 79.7 | Cirro-strati | .649 | 85.5 | 87.4 | 81.7 | Ditto | .615 | 88.5 | 89.3 | 82.0 | S. E. Cumulo-strati |
| 27 | .601 | 81.3 | 81.4 | 80.5 | Ditto | .647 | 86.9 | 87.6 | 81.0 | Ditto | .613 | 90.0 | 91.0 | 82.7 | E. Ditto |
| 28 | .598 | 82.3 | 82.4 | 80.7 | Cirro-cumul | .671 | 84.6 | 85.8 | 83.7 | Cumul | .639 | 91.4 | 92.6 | 83.4 | E. N. E. Ditto |
| 29 | .651 | 83.0 | 83.4 | 82.0 | Cirro-strati | .628 | 86.6 | 87.3 | 82.4 | Cloudy | .595 | 90.2 | 91.2 | 82.9 | E. E. Cirro-strati |
| 30 | .612 | 84.4 | 84.4 | 82.7 | Cloudy | .580 | 86.0 | 86.8 | 82.0 | Cumulo-strati | .550 | 88.5 | 89.0 | 82.8 | E. Nimbi |
| 31 | .548 | 81.4 | 81.7 | 80.4 | Ditto | | | | | | | | | | |
| Mean | 29.610 | 81.3 | 81.5 | 80.3 | ..... | 29.650 | 85.2 | 86.3 | 82.0 | ..... | 29.623 | 87.7 | 88.3 | 82.3 | ..... |

[Meteorological Register, continued.]

| Observations made at 2 1/2, 4, 6, 8, 10, 12, 2, 4, 6, 8, 10, 12. | | | | | | | | | | Minimum Pressure observed at 4 p. m. | | | | | Observations made at sun-set. | | | | | Maximum and Minimum Thermometer. | | | | Rain Gauges. | | Moon's Phase. | Date. |
|--|---------------------|--------------|---------|----------|----------------|---------------------|--------------|---------|-------|--------------------------------------|---------------------|---------|---------|----------|-------------------------------|-----------------|------|------|-------|----------------------------------|------------------|-----------------|---------|--------------|--|---------------|-------|
| Inches. | Bar. red. to 32° F. | Temperature. | | Wind. | Aspect of Sky. | Bar. red. to 32° F. | Temperature. | | Wind. | Aspect of Sky. | Bar. red. to 32° F. | Of Mer. | Of Air. | W. Bulb. | Direction at 4 p. m. | Aspect of Sky. | Max. | Min. | Mean. | Max. in Sun's rays. | Feet. 60. Upper. | Feet. 5. Lower. | | | | | |
| | | Of Mer. | Of Air. | | | | Of Mer. | Of Air. | | | | | | | | | | | | | | | Of Mer. | Of Air. | | | |
| 29.453 | 91.0 | 91.3 | 82.2 | N. E. | Cumulo-strati | 29.420 | 91.6 | 91.4 | 81.6 | E. N. E. | 29.435 | 88.8 | 87.0 | 81.7 | S. E. | Cloudy | 92.3 | 86.4 | 80.4 | 109.6 | 0.06 | Inch. | 1 | | | | |
| 454 | 90.0 | 88.8 | 82.2 | S. E. | Nimbi | 428 | 90.0 | 90.5 | 82.4 | N. E. | 461 | 88.8 | 88.5 | 82.2 | N. E. | Cumulo-strati | 91.2 | 86.6 | 81.9 | 101.8 | 0.34 | 0.38 | 2 | | | | |
| 412 | 84.6 | 85.2 | 82.4 | E. | Ditto | 379 | 83.5 | 82.3 | 80.4 | E. | 414 | 83.3 | 82.0 | 81.5 | N. E. | Cloudy | 89.3 | 84.3 | 79.2 | 102.8 | 0.42 | 0.46 | 3 | | | | |
| 429 | 89.0 | 89.0 | 82.3 | E. S. E. | Cumulo-strati | 423 | 87.4 | 85.0 | 82.2 | S. E. | 468 | 84.0 | 84.0 | 80.5 | S. | Ditto | 89.6 | 85.2 | 80.8 | 100.6 | 0.12 | 0.16 | 4 | | | | |
| 519 | 87.0 | 86.8 | 80.6 | S. | Cloudy | 506 | 87.6 | 87.8 | 80.6 | S. | 514 | 84.4 | 84.4 | 80.0 | S. | Cirro-strati | 88.2 | 84.0 | 79.7 | 99.8 | 0.29 | 0.33 | 5 | | | | |
| 511 | 86.8 | 87.2 | 82.8 | S. | Nimbi | 483 | 86.6 | 85.2 | 81.6 | S. | 501 | 85.2 | 84.5 | 81.9 | S. W. | Ditto | 87.6 | 84.2 | 80.7 | 98.3 | 0.23 | 0.32 | 6 | | | | |
| 521 | 84.0 | 81.4 | 79.2 | S. S. W. | Raining | 522 | 82.4 | 82.6 | 81.3 | S. | 560 | 81.5 | 82.3 | 78.2 | S. W. | Raining | 87.2 | 83.5 | 79.8 | 93.4 | 0.52 | 0.58 | 7 | | | | |
| 553 | 86.6 | 86.7 | 82.8 | S. S. W. | Cloudy | 527 | 86.4 | 86.4 | 82.2 | S. S. W. | 567 | 85.2 | 85.5 | 82.2 | S. | Cirro-cumuli | 87.7 | 83.0 | 78.2 | 95.8 | 1.06 | 1.06 | 8 | | | | |
| 553 | 89.0 | 88.0 | 81.7 | W. | Cumulo-strati | 544 | 89.0 | 89.2 | 81.9 | W. | 585 | 85.6 | 81.3 | 79.0 | S. | Raining | 90.2 | 85.9 | 81.6 | 100.8 | 0.99 | 0.99 | 9 | | | | |
| 581 | 86.8 | 86.9 | 81.3 | W. N. W. | Cloudy | 560 | 87.4 | 87.6 | 81.2 | W. N. W. | 587 | 86.4 | 86.2 | 82.3 | S. S. W. | Cirro-cumuli | 91.4 | 86.3 | 81.2 | 108.5 | 0.99 | 0.99 | 10 | | | | |
| 573 | 90.2 | 90.7 | 83.5 | S. W. | Cirro-strati | 563 | 90.6 | 90.3 | 82.6 | S. | 580 | 88.8 | 87.8 | 82.3 | S. S. W. | Cloudy | 91.4 | 86.3 | 81.5 | 100.6 | 0.99 | 0.99 | 11 | | | | |
| 547 | 90.0 | 91.4 | 84.5 | S. W. | Cumulo-strati | 526 | 90.6 | 90.6 | 83.6 | S. | 533 | 88.0 | 87.3 | 83.5 | S. W. | Scattered-clds. | 91.6 | 86.8 | 81.9 | 101.2 | 0.99 | 0.99 | 12 | | | | |
| 486 | 90.6 | 90.7 | 83.5 | W. | Cloudy | 463 | 89.7 | 89.4 | 83.6 | S. | 498 | 86.8 | 86.2 | 82.3 | S. W. | Cloudy | 91.6 | 86.8 | 81.9 | 101.2 | 0.99 | 0.99 | 13 | | | | |
| 537 | 89.3 | 88.8 | 82.4 | N. E. | Ditto | 547 | 88.0 | 88.0 | 83.0 | E. N. E. | 544 | 86.0 | 85.5 | 82.0 | E. S. E. | Ditto | 87.0 | 83.1 | 79.2 | 97.3 | 0.22 | 0.22 | 14 | | | | |
| 612 | 85.7 | 85.4 | 82.0 | N. E. | Ditto | 614 | 85.4 | 84.6 | 81.0 | N. W. | 635 | 81.0 | 80.2 | 79.3 | S. | Nimbi | 90.2 | 85.0 | 79.7 | 103.2 | 0.70 | 0.74 | 15 | | | | |
| 628 | 87.8 | 89.4 | 84.9 | N. N. W. | Nimbi | 614 | 85.4 | 84.6 | 81.0 | N. W. | 646 | 82.2 | 81.6 | 79.8 | S. | Raining | 90.8 | 85.3 | 79.8 | 109.6 | 0.24 | 0.28 | 16 | | | | |
| 658 | 88.3 | 86.2 | 81.3 | S. E. | Cirro-strati | 636 | 87.0 | 87.4 | 81.8 | S. E. | 659 | 84.0 | 83.4 | 81.5 | S. W. | Cloudy | 90.4 | 85.9 | 81.4 | 101.8 | 1.24 | 1.34 | 17 | | | | |
| 680 | 88.0 | 87.8 | 83.2 | S. E. | Cloudy | 619 | 87.0 | 86.4 | 82.2 | S. | 644 | 85.2 | 85.0 | 81.5 | S. W. | Cloudy | 88.0 | 82.5 | 77.0 | 97.0 | 1.72 | 1.84 | 18 | | | | |
| 626 | 87.3 | 87.4 | 83.0 | S. | Cirro-strati | 587 | 86.4 | 85.8 | 82.0 | S. | 620 | 85.0 | 84.9 | 81.0 | S. | Ditto | 87.0 | 83.6 | 80.1 | 98.7 | 0.12 | 0.14 | 19 | | | | |
| 637 | 86.2 | 86.5 | 81.0 | S. | Cumulo-strati | 630 | 85.8 | 85.2 | 81.3 | S. | 626 | 83.5 | 83.5 | 80.6 | S. E. | Scattered-clds | 87.0 | 83.6 | 80.1 | 102.4 | 0.12 | 0.14 | 20 | | | | |
| 658 | 88.3 | 88.5 | 81.8 | S. E. | Nimbi | 631 | 87.2 | 87.8 | 82.2 | S. | 649 | 85.4 | 85.4 | 80.8 | S. E. | Cloudy | 91.6 | 85.8 | 79.9 | 110.2 | 0.99 | 0.99 | 21 | | | | |
| 688 | 89.6 | 88.2 | 82.4 | S. S. E. | Cumulo-strati | 612 | 88.0 | 88.2 | 82.0 | S. E. | 637 | 87.0 | 86.6 | 81.5 | S. E. | Cumulo-strati | 88.8 | 84.7 | 80.5 | 97.8 | 0.99 | 0.99 | 22 | | | | |
| 637 | 87.2 | 87.0 | 81.5 | S. E. | Ditto | 610 | 85.0 | 84.3 | 80.7 | S. E. | 646 | 84.2 | 84.2 | 80.6 | S. E. | Cloudy | 89.4 | 85.4 | 79.6 | 98.8 | 0.30 | 0.36 | 23 | | | | |
| 627 | 86.0 | 85.3 | 81.8 | S. E. | Cloudy | 610 | 85.0 | 84.0 | 80.3 | S. E. | 646 | 84.0 | 84.2 | 80.2 | S. | Ditto | 87.8 | 84.0 | 80.2 | 104.0 | 0.14 | 0.17 | 24 | | | | |
| 667 | 85.9 | 85.7 | 81.8 | S. E. | Ditto | 635 | 86.6 | 87.2 | 82.0 | S. | 663 | 84.0 | 84.2 | 81.5 | S. | Cirro-strati | 90.4 | 85.0 | 79.5 | 105.6 | 0.05 | 0.06 | 25 | | | | |
| 605 | 89.4 | 90.1 | 83.2 | S. E. | Cumulo-strati | 566 | 89.0 | 88.0 | 82.5 | S. | 575 | 88.2 | 86.7 | 81.5 | S. E. | Scattered-clds. | 91.0 | 85.8 | 80.6 | 108.2 | 0.99 | 0.99 | 26 | | | | |
| 549 | 90.2 | 90.3 | 82.5 | S. | Ditto | 516 | 90.3 | 89.5 | 81.6 | E. S. E. | 538 | 87.6 | 87.4 | 82.3 | E. S. E. | Cloudy | 93.0 | 87.4 | 81.8 | 111.3 | 0.99 | 0.99 | 27 | | | | |
| 562 | 92.0 | 92.2 | 82.3 | N. E. | Ditto | 585 | 91.6 | 92.0 | 82.5 | E. N. E. | 543 | 87.7 | 87.1 | 80.5 | S. E. | Ditto | 94.8 | 89.0 | 83.1 | 113.3 | 0.99 | 0.99 | 28 | | | | |
| 559 | 93.8 | 94.4 | 84.3 | N. E. | Ditto | 587 | 94.0 | 94.6 | 84.7 | N. E. | 523 | 91.0 | 89.2 | 80.3 | S. E. | Cumulo-strati | 91.8 | 88.0 | 84.2 | 104.9 | 0.28 | 0.32 | 29 | | | | |
| 561 | 86.9 | 86.6 | 82.9 | E. N. E. | Cloudy | 531 | 88.0 | 88.2 | 83.2 | E. | 551 | 85.0 | 84.7 | 81.2 | S. E. | Ditto | 89.8 | 85.4 | 80.9 | 103.4 | 0.26 | 0.32 | 30 | | | | |
| 500 | 87.6 | 86.0 | 81.6 | S. E. | Nimbi | 481 | 88.0 | 86.4 | 82.2 | S. | 503 | 86.1 | 84.9 | 81.0 | S. | Ditto | 89.8 | 85.4 | 80.9 | 103.4 | 0.26 | 0.32 | 31 | | | | |

JOURNAL

OF THE

ASIATIC SOCIETY.

No. VII.—1853.

Notes upon a Tour in the Sikkim Himalayah Mountains, undertaken for the purpose of ascertaining the Geological Formation of Kunchinjunga and of the perpetually snow-covered peaks in its vicinity.
—By Captain WALTER STANHOPE SHERWILL, Revenue Surveyor.

(Concluded from page 570.)

August 10th, 1852 —Direction north, still along the crest of Singaleelah; started at 7 A. M. on a beautiful sunny morning, the weather delicious and the air very pure, of which I took advantage, and obtained the following bearings; Tassiding Goompa east, Darjeeling south-east, the houses being quite distinct and visible, and only twenty-four miles distant by direct distance, but these twenty-four miles have cost us seven long and laborious marches, or at the very lowest computation, one hundred and forty-five miles of windings and twistings of ascents and descents. Tendong* mountain E. 11° S. The survey Flag Staff on the Tonglo† mountain S. 11° E. Sundhukphoo mountain S. 11° W.

To the south-east the Teesta river was distinctly visible in the plains south of the Morung Forest. To the north Kunchinjunga towered over the high peaks of Singaleelah.

Looking to the west, the snowy range of Nepal, grander in its proportions, if any thing, than the Darjeeling range, Kunchinjunga always excepted, and the cultivated valleys of Nepal and some very remarkable rocky and sterile peaks standing between the perpetual snows and the upper limits of vegetation, presented us with a view

* Ten "permanent," Dong "resting-place." † Tonglo "Cotton tree."

that very speedily made us forget all the labour we had gone through the previous week. As we proceeded we looked down into the deep blue valley of the Rungbi, which at this point is about 10,000 feet deep. The eye, in looking down these stupendous valleys, wanders from the tough arctic lichen and snow rhododendron at the observer's feet over fine forests of fir trees, rhododendron, birch, oak, on the slopes of the mountains, down to the tropical trees and plants, plantains, bamboos and gigantic grasses in the valleys. The scenery was now rapidly changing; instead of the suffocating heat of the valleys with their abundant tropical vegetation, we were breathing a bracing pure air, with the Thermometer standing at 41° ; the trees were small; of soil there was but a very scanty sprinkling under our feet, and looking either to the east or the west a wild confused snowy scene, treeless mountains, rocky peaks destitute of vegetation, bare precipices and deep—profoundly deep—valleys had replaced our hitherto confined view.

At 8-30 we arrived at a foot path descending towards Nepal; at this spot were the remains of a Gurung's hut and a small shallow pool of water measuring 150 by 30 feet.

At this spot I measured a cherry tree and ascertained it to be twelve feet in circumference. Plants and trees met with this morning were rhododendrons of many kinds, from the rhododendron with a leaf fourteen inches in length with a deep ferruginous tinge on the under side of the leaf to the small aromatic rhododendron with a leaf only $\frac{1}{8}$ th of an inch in length, bearing a purple flower; yellow hearts-ease, rose, hypericum of several kinds, one thorny with a yellow flower, thistle, hemlock, yellow-flowered potentilla, dock garlic with a pink flower, and many others.

The sheep track to-day was almost entirely over bare gneiss rock, in which were fine crystals of schorl.

During this march we passed several caves in the gneiss called by the Lepchas, L'haps, into which they, with solemn faces assured us, their Lamas can with a lighted candle in hand, travel subterraneously from one mountain to another—no one besides the Lamas possessing this faculty.

At 11 A. M. we came upon the tracks of the Sippiyook or wild sheep, an enormous animal judging by his foot-print, at a spot where

the ridge of Singaleelah is split into two ridges, the whole being composed of precipices and naked masses of gneiss rock affording in its crevices a place for a sweetly scented rhododendron, a pretty white primula and a large ox-eye looking compositæ flower growing upon a long stem. For half an hour after leaving this curious spot, our track lay under a vast precipice of gneiss from which the earthquakes, which are so frequent in these mountains, have hurled down large masses of rock, and in this dangerous spot the Gurungs have ventured to erect their huts even under the most dangerous and incoherent rocks. The whole face of the precipice is split into cuboidal masses, piled one upon the other and which threaten hourly descent. In one of the detached cubes of gneiss I noticed a band of greenstone six inches in width extending for sixty feet along the front of the rock. Under this insecure-looking rock were the remains of a Gurung encampment. This mountain is the Dundongla of Hooker; a footpath leading from Sikkim towards Nepal, here crosses Singaleelah and is called the Dundongla pass.

At 2 p. m. we again regained the crest of Singaleelah, where we saw an old spring set for the capture of pheasants; a few minutes afterwards a covey rose close to us, from which I managed to bag a brace; of these welcome birds our Lepchas made us a delicious curry in the evening, the first hot meal we had had for nine days.

Encamped for the night at the southern foot of Kanglanamo mountain at an elevation of 12,317 feet in a dense fog which during the night condensed into heavy rain. At the foot of this mountain the Lepchas collected a quantity of a white lichen which grows in long white filaments; they called it, Búkh; it is used as incense to burn before their gods.

August 11th, 1852.—A most lovely clear morning, the perpetual snow is only eight miles ahead of us; the air very cold, Thermometer standing at 41° at sunrise; half an hour's walking brought us at 7.45 a. m. to the base of the conical-shaped Kanglanamo, and three quarters of an hour more and we stood upon the summit at about 13,000 feet elevation towering over every peak to the south. At the base of the mountain there are quantities of a dark and glossy hornblende slate mixed with the gneiss apparently split and fractured by the snow and frost of winter. In Hooker's Map of

Sikkim, Kanglanamo is made to appear covered with perpetual snow; this is a mistake, as I found the following plants on its summit and no snow; yellow and purple aromatic rhododendrons and another kind, rose, pyrus americana, and many small flowers.

The stratification of the gneiss at this elevation is perfectly horizontal, and in no way contorted, as it is at 7,000 feet and lower—associated with the gneiss on Kanglanamo is much hornblende and a black micaceous slate, green felspar, veins of snow-white quartz and masses of black mica.

The view from the summit of Kanglanamo is very extensive, embracing as it does nearly two hundred miles of the Nepal snowy range, and showing the junction of Kunchinjunga with the Nepal range: a sharp peak bearing a little to the north of west, distant 200 miles, that has been visible for two days, but has barely altered its bearing I imagine to be Gosainthan mountain, directly north of Catmandu; so that from Gosainthan mountain on the west round by the Nepal snowy range passing round by Kunchinjunga, Pundeem, the eastern snowy range down southward to Cholah—we had a glorious panorama of three hundred miles of perpetual snow, peak towering above peak, all approach to which appears guarded by steep, precipitous and bare rocky mountains. Looking to the south the plains of Bengal appear but a very few miles distant, although sixty miles removed, and on a very clear day the Rajmuhul Hills south of the Ganges distant 165 miles must be visible, as they are from lower elevations. Chumulari could not be seen, though I searched well for him—probably haze or clouds shut him out from our view. On the north-west we could see the Wallanchun and Kanglachema passes into Tibet, forty miles distant. Over these passes salt is brought from the salt lakes in Tibet. The salt is laden first upon men's backs, who with much difficulty convey it over a dangerous portion of the pass, it is then transferred to the backs of sheep who convey it over the narrow footpaths of the great elevations; from the sheep it is transferred to yaks, from yaks to bullocks and eventually, when nearing the plains, it is transferred to carts.

There is a strange prophecy amongst the Bhotias concerning these salt lakes, it is as follows: In the salt lake region there is one large lake from which no salt has hitherto been obtained by reason

of the great quantity of water in the lake; this lake it is prophesied will in time dry up as the others have done, and that when salt can be procured from the lake, it will be carried away over the passes by a white nation who will come from the south, and who will seize upon the lakes as their own.

The lake is said to have commenced drying up lately, and it is expected that salt will be obtainable from it in a few years.

One European and only one (Dr. Hooker) has visited these passes.

One mountain in the Nepal range is a most remarkable object, both for its curious shape and for its immense height, its name none of my party knew, nor have I yet succeeded in obtaining the name. The peak is a hollow crater-like mountain probably 27,000 feet in height with a long table-mountain attached to it, both covered with glaciers. To the west of this great mountain are five distinct peaks separating the large mountain from a hollow shell-like and perpendicular mountain about 26,000 feet in height. The morning sun shining upon this mass of snow, gave it the appearance of a gigantic pearl-shell set upon its edge, the snow on the surface being of a bright pink colour. From the peculiar hollow curved and perpendicular nature of this mountain, it resembles the crater of a Volcano broken down on one side; beneath this range of snowy mountains there is a range of bare mountains of a deep red colour about 19,000 feet in height, broken into thousands of ravines, and totally destitute of vegetation.

At 9 A. M. we got a glimpse of an inhabited Gurung's hut far away upon a lofty mountain in Nepal, the flocks of white sheep looking like small patches upon the mountain side.

At a small trickle of water where we halted to breakfast, long slender and entirely white worms were abundant in the water; they resembled long pieces of white thread. The Lepchas seemed to hold them in great dread, and would on no account touch them. The crest of Singalcelah at this spot is a precipitous jagged and rocky mountain which necessitated us to descend several hundred feet into the Nepal territory. At 11 A. M. the path led us through a swampy tract of country with several pools of good water, numerous streams flowing to the westward over slaty gneiss. On a patch of luxuriant grass near the pools of water, I turned out from under a

slab of gneiss, one of those curious little animals the *Neodon sik. kimensis* whose habits and proportions resemble that of the *Arvicola*, but the tail is comparatively short; length from snout to the root of the tail five inches—of the tail $1\frac{1}{2}$ inch. This genus was discovered by Mr. B. H. Hodgson in Upper India. From amongst the rhododendron bushes, we put up a large number of the beautiful scarlet-legged and three-spurred pheasants, of which I only bagged one; in the marshy ground great quantities of a beautiful primrose were in full blossom—also chrysanthemum, a blue dock, dwarf rhododendrons, grass in abundance, many beautiful flowers and potentilla; as we were admiring these beauties, we heard the deep barking of the Gurung's dogs betokening the vicinity to one of their large flocks. A Nepalese of our party was sent on ahead to have the fierce dogs called off, or the better part of our party would have been torn to pieces by these ferocious brutes. We soon came up to the Gurungs seven in number, fine athletic looking Hindus with very scant clothing. They stood in the midst of their flock of three hundred sheep surrounded by their fine-looking dogs which resemble the Newfoundland breed. These shepherds had pitched their one long mat-hut twenty feet in length upon a grassy knoll under the shadow of some rhododendron trees. They called the country *Is-sunghee*, and said that they were moving downwards, having consumed all the grass nearer the snows. Their sheep, which are of a very large breed, were in excellent condition, and some of the wethers of a size unknown in England; they asked eight rupees for a large wether, from whose carcass twenty men might have been well fed. In the hut we found the Sirdar or chief, *Pahulmun* by name, of *Chynepoor* in Nepal; he told me that he had five brothers each owning a flock of sheep, and that they were all upon the neighbouring mountains. The wool from these sheep is converted into very good blankets, several of which I saw in the tent—the Gurungs appeared to be well fed, their food consisting of mutton and Indian corn, heaps of the latter were being weighed out in the tent prior to being cooked for dinner. The men had an abundance of good brass cooking pots and blankets, and the Sirdar was armed with a handsome silver-mounted kookree or Nepal knife:—snow falls here early in October—elevation about 12,000 feet.

Not being able to come to any terms about the purchase of some sheep, we left the Gurung's hut, and descended a few hundred feet under the guidance of one of the Gurungs to a fir forest, from whence we again ascended and encamped at one P. M. upon a grassy mountain covered with sheep tracks and overhanging the deep valley of the Yung-ya river. We were above the line of firs at 12,109 feet, Thermometer 56°, my breathing was very much affected, and it was with great difficulty I managed the last ascent, and with greater difficulty I managed to bag a beautiful scarlet-legged pheasant. Our Lepchas, who are the most timid of mortals, appeared rather frightened at being in Nepal, especially as the Gurung Sirdar had been questioning them as to the meaning of our party coming into Nepal. He was informed that the rocky nature of the summit of Singaleelah was the reason we were in the Nepal territory, and that had it been possible to have avoided crossing the Sikkim boundary, we would not have done so. The Sirdar said, it was all very well talking, but he knew very well that we had come to examine the boundary, and that he would report our party to the Nepal Durbar. which we suppose he did, as we saw a messenger depart that very afternoon towards the west.

Towards the evening the Gurungs brought some dead sheep for sale that had been killed on account of sickness produced by eating the aconitum. The Gurungs watch the animal that has partaken of this deadly plant, and if they find there is no chance of its living, its throat is cut and the carcass eaten. The wool is first cut off close and the stumps singed until the animal appears dressed in parchment. Strange to say the Lepchas, who will eat snakes, frogs and other extraordinary food, would not partake of these diseased sheep, the two carcasses therefore that I purchased were made over to the Nepalese Hindoo coolies, four in number, who consumed the two sheep in two days.

Across a deep valley immediately opposite or west of our small encampment, was an immense cascade falling by a succession of leaps from upwards of 3,000 feet down into the valley of the Yung-ya river. To our east the ragged and serrated crest of Singaleelah rose some thousand feet above us, the horizontal masses of gneiss being destitute of any vegetation. About 2,000 feet above our camp,

upon the Singaleelah slopes I discerned several white objects like men; I sent off a Lepcha for one, and it turned out to be a mountain rhubarb plant, one of the handsomest botanical objects I ever remember to have seen. It consists of a conical assemblage of buff-coloured leaves of great beauty elegantly crimped, and edged with pink; the whole growing upon a substantial stem, upon which and hidden by the graceful leaves are bundles of flowers and triangular seeds somewhat resembling mignonette—the plant measures forty-five inches in diameter at the base of the cone, and is about the same height. The Lepchas call it “*Chookoor Dong*,” the stem is eaten by the Hill people, it is extremely acid and astringent.

August 12th, 1852. Woodcocks were heard overhead at day-break. Further south upon the summit of Singaleelah there are a considerable number of these birds.

Started at 6 A. M. Thermometer 41°, our road was up a narrow grassy gorge in the mountain; some of the snowy peaks were seen peering over the tail of Kubra on our left, about five miles distant—a few hundred feet rise, brought us to the top of the Kanganamo pass, a gap in the crest of Singaleelah, affording during the summer months a means of communication between Sikkim and Nepal. This is the pass, so I have been informed, by which Dr. Hooker endeavoured to force his way from Nepal to Sikkim, but was prevented by the deep snow. The pass I calculate to be 12,600 feet, but I did not take the height.

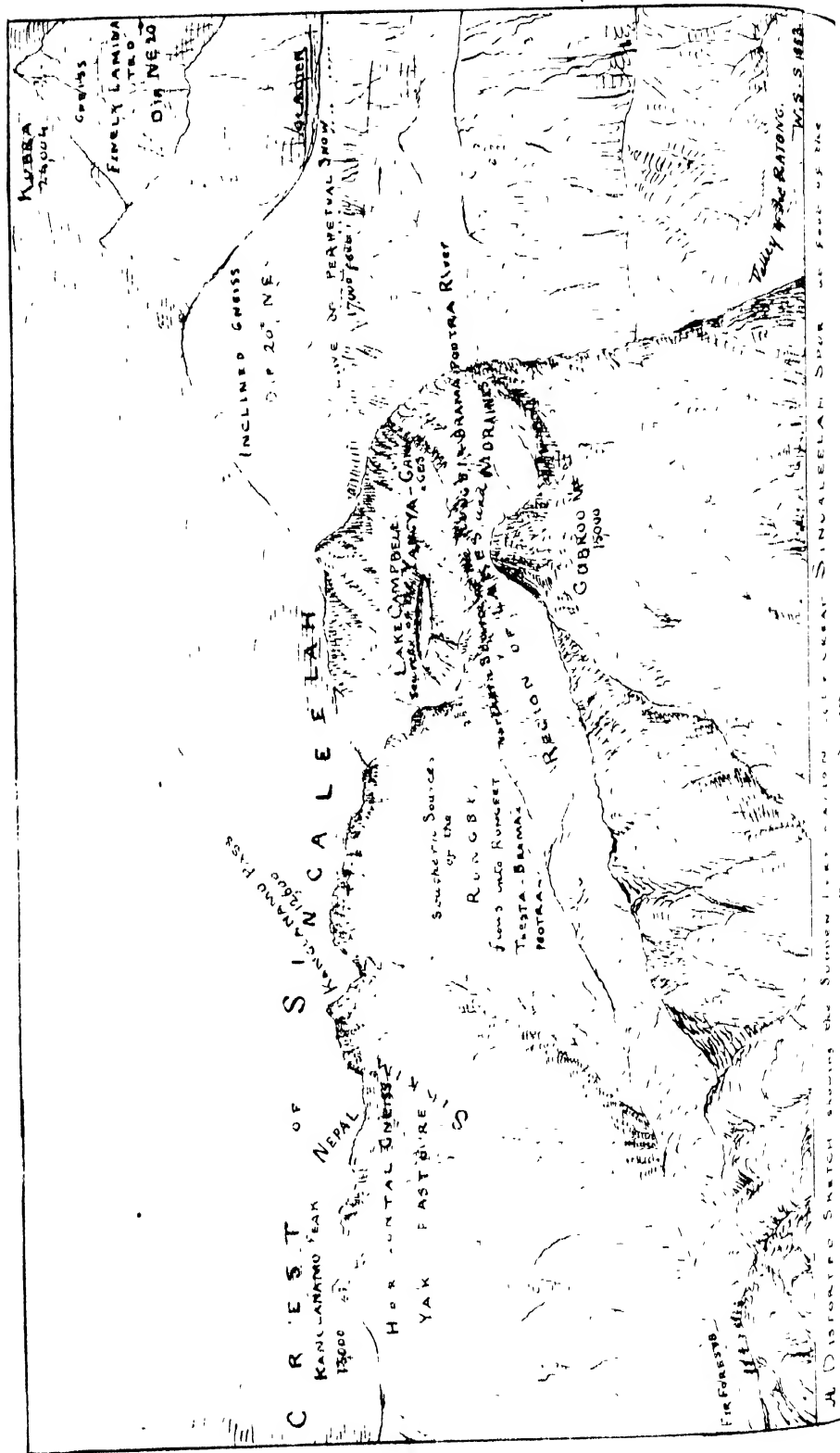
The rocks on the crest of Singaleelah at the pass are of horizontal gneiss, castellated and shattered by the frost, on the right hand side of the pass the rock has been worn into the very image of a man sitting with his hands upon his knees, dressed in a robe and crowned with a Scotch cap with a conspicuous tuft on its top. The whole figure is about fourteen feet in height; the figure by all parties was declared to be the Rajah of Sikkim guarding his boundary.

From the pass, the weather being very fine and the air clear, we had an extensive view of the plains, the Teesta river, the eastern snowy range and of Darjeeling, which latter mountain is a fine object from whatever side it is observed. Darjeeling bore south 22° east, Tendong mountain south-east by east; we were considerably to the north of several of the snowy peaks—we now left the footpath which



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The 'Chookor Dong' or Mountain Rhubarb, found at 14,000 Feet Elevation.



descends in an easterly direction from the pass, crosses the Rungbi to Yangpoong, to scramble in a northerly direction over naked rocks under the eastern crest of Singaleelah; these rocks have been hurled from the castellated crest by the severe frosts of winter; the stratification of the gneiss being perfectly horizontal, and the individual strata exceeding minute; the Lepchas named the blocks "Lama's books" which indeed they resemble—one of these blocks fifteen feet in height and thirty in length, was traversed by a band of white quartz a foot thick, and being of a less perishable nature than the gneiss, it stood out in bold relief at each end of the block. A thousand feet below us, we saw some pools of water standing in the midst of fine grass pasture land, the property of the Sikkim Rajah, and where his herds of yaks graze in the month of September; several stone huts were scattered about the pasture, where the yak herds shelter themselves during the night. At the present the yaks were five miles to the north at Jongri, immediately under the snow, or three days' journey from this. One mile of this rough and slippery scrambling brought us again to the crest of Singaleelah, where, to my amazement I discovered that the Singaleelah range breaks off suddenly, and that I stood upon the edge of a steep descent several thousand feet deep. Singaleelah at this spot sweeps round to the east by a great bend of one mile, and terminates in a spur that points to the south, separating the two main sources of the Rungbi river. From nearly the centre of the great curve, a narrow wall-like ledge much below the crest of Singaleelah runs to the north, and forms the only apparent connection of Singaleelah with the snows. Looking down into the deep valleys to the right and to the left, whose waters are separated by the narrow ledge above-mentioned, the eye rests upon a curious scene; the valleys, destitute of any vegetation and filled with pools of water, have been scoured from end to end by the action of either heavy masses of moving snow or by glaciers, the loose rocks are piled up in confusion, in some places, to the height of several hundred feet. The whole scene is one of ruin and desolation—not a shrub or a plant is seen, nothing but a region of loosely piled up gneiss rocks. From this spot looking to the north-west or across the deep valley at our feet, a fine lake about a mile in length is seen perched up in a strange position upon

a high level plateau in the mountain. The water, partaking of the colour of the naked rocks that rose behind it for several thousand feet, was almost black ; its shores were rocky, dark and gloomy.

From this lake the Yungya, a feeder of the Tambur river in Nepal, takes its rise, and is seen leaving the lake by a fine cascade of 3,000 feet fall. As this lake had never been seen by any European, I have named it "*Lake Campbell*," after my esteemed friend Dr. A. Campbell at Darjeeling.

From this strange spot we descended to the east of the narrow ledge and found ourselves in a deep hollow, full of pools of water, and the whole surface of the valley one large moraine, the rocks of which have been driven about and piled up in wild confusion. Temperature of air at 10 A. M. was 58° of water 52°.

I was enabled this day to make some slight additions to Dr. Hooker's valuable Map of Sikkim—especially as this immediate spot was not visited by that intelligent traveller.

Encamped at 1 P. M. upon moss and lichen covered rocks at an elevation of 14,229 feet—we had been scrambling over these loose gneiss rocks for hours, and as we had splitting headaches, we were delighted to halt, although the poor Lepchas had no wood to cook their food. The rarefaction of the air is beginning to tell upon us; bleeding at the nose, a tightness across the back of the head, is what I most suffer from. The exertion of writing, making a false step amongst the rocks, of addressing any one, stooping to tie the shoe, or performing any act requiring but moderate exertion, is productive of the most distressing symptoms of suffocation, sharp sudden pains in the chest, extreme beating of the heart, and violent action of the lungs, which being fed with a thin and rarefied air, have to work hard to keep the blood purified. I have been so prostrated this day as to be fit for nothing, which is the more strange as our elevation is not a very great one ; but from all I can gather from travellers in the Himalayah, I suspect that the sufferings of travellers commencing as they do from this elevation, are more acute and more noticed as being something new and at first very alarming. One of our Nepal coolies is in great agony, moaning in a most piteous manner. During the afternoon, rain and fog shut us out from all the world. In the sheltered spots I found dwarf rhododendron, a few primroses

a butter-cup-like plant, the conical rhubarb, two andromeda, one with a pretty white bell the very image of a true heath—and juniper, a few sticks of which latter tree were brought up from a distance by the Lepchas, and with them water was boiled with some difficulty at $189^{\circ} 50$, or 14,229 feet.

A pheasant got up from amongst the rocks, which I fired at and bagged; the concussion of the air was so intolerable and stunning, and so painful, that I was obliged to lie down for some hours before I got over it.

The fog clearing away we were enabled to see that we were in the midst of a scene of desolation and chaos, ragged rocks, black slate, moraines, land slips and steep cliffs were all that met our view near us, but to the south the plains and the intermediate ranges of mountains were all spread out before us. To the east of our encampment about one mile distant, we gradually saw the rounded mountain Gubroo, 15,000 feet, emerge from the clouds. To the north we could see nothing, as we were at some distance from the crest of a high ridge, that leaves the foot of Gubroo and sweeping round to the west, joins the high black mountains on which "*Lake Campbell*" is situated.

Somewhat to our astonishment we found our tent was only a few feet removed from a precipice 300 feet deep, had one of the furious blasts of wind that are common at this elevation descended from the snows, our tent would have been hurled over the precipice and received at the bottom in a deep pool of water a few hundred feet across. Thirty feet from the shore and at the depth of twenty feet I could see rocks around, whilst the water from its great depth was quite black.—A bright sun was shining overhead which would have enabled me to see the bottom perhaps at fifty feet, had the pool been so shallow. These pools during the winter are entirely frozen and covered with snow, one hundred feet deep or more, which is drifted from the heights above—when this large body of snow begins to melt in the spring and summer, the rocks lying under it are pushed along with the descending mass and are heaped and piled up as we saw them. These pools form the sources of the Rungbi river which, after a course of thirty-five miles through deep valleys, falls into the great Rungeet under Rinchinpoong.

August 13th, 1852. Leaving our tents, baggage and people at the encampment we ascended the loose rocky ridge to the north of us, the summit of which, 14,500 feet, we reached in half an hour; the sight that met our gaze from the top was a scene of grandeur I had never expected to see. The whole of the snowy mountains seen from Darjeeling were close to us, Kubra, 24,004 feet in height, appeared hanging over us although two and a half miles distant, but all progress northward was completely cut off, we were on the edge of a precipice many thousands of feet deep, at the bottom of which was a narrow valley running east and west with a handsome lake to the east, the water from which runs round the foot of Gubroo and falls into the Ratong. Across this valley a small ledge of rocks connects the semi-circular ridge of Gubroo with the foot of Kubra. Three similar chasms all running south-east, north-west, separated us from the perpetual snow on Kubra. The sides of the chasms are composed of a dark slaty rock, containing much hornblende, the sides being too precipitous to allow snow to rest upon them. The first and second ridges had no snow on them, the third had patches only of snow, the fourth was covered with perpetual snow, one and a half mile distant from us. These ridges are buttresses, descending from Kubra and terminate in the Ratong valley.

The Thermometer stood at 34° ; the air was quite clear and bracing, allowing us a free view of the plains, Darjeeling, Nepal, the eastern snowy range and of the giant peaks to the north of us. *No aid from a telescope was required to show me that the whole of the large snow-covered mountains, Kunchinjunga, Pundcem, Kubra and Junnoo are composed of a finely stratified rock to their very summits.* By the aid of a telescope, the stratification of Kunchinjunga was very distinct, both in the large naked spot, now only ten and a half miles distant, and mentioned in the first page of my diary as having been caused by the earthquake of May, as well as at the very summit which is not covered with snow, but with a pellicle of ice, snow only resting upon the ledges and peaks. The strata, which are very small and minute, dip to the north-east about 20° , all the large peaks presented the same appearance. The rocks of the Gubroo range are composed of a hard flinty parallel gneiss intermixed with much black or blue hornblende and micaceous slate, the gneiss everywhere splitting into very thin laminæ as thin as roofing slates.

Immediately to the west of Gubroo, the rocks dip to the south-west at an angle of 30° .

The dip of the strata upon the Gubroo ridge being to the south-west, and the northern face of the ridge being nearly precipitous, a great flow of water takes place towards the south, the whole surface of the mountain is divided with numerous steppes, each steppe having pools of water resting upon them averaging from one hundred to four hundred yards broad—and many of them surrounded by steep walls of a fine slaty gneiss composed of hornblende, white quartz and felspar; from these pools there is a constant discharge of icy cold water which flowing away south form the Rungbi river.

From the crest of the Gubroo range, we could see a yak herd's encampment in the direction of Jongri, or north-east of where we stood, many thousand feet below us and separated by several deep valleys.

Kunchinjinga, 28,177* feet above the sea was $10\frac{1}{2}$ miles distant.

Pundeem,22,015* ditto ditto 7 ditto.

Kubra,24,001* ditto ditto 3 ditto.

Nursing,19,139* ditto ditto 12 ditto.

Tuchem, ...14,000 (?) ditto ditto 27 ditto.

We were six miles north of Nursing; this peak from Darjeeling has the appearance of rather a blunt rounded mountain, but from our position it was an exceedingly sharp pointed peak, run into a very fine point. None of the numerous glaciers that abound at the foot of all the great peaks and in the valleys separating them, could be seen, being completely hidden by the sharp slaty ridges above mentioned.

From the nature of the mountains surrounding Kunchinjinga, I felt convinced that any nearer approach to the great peak would hide him altogether, I therefore determined upon returning. Sitting on the ground with a rock to support my back, I with much difficulty, from the pain I was suffering from the rarefaction of the air, took a sketch of the snowy range from the most northerly attained spot in our journey, and having given one more look round this grand and wintry scene, we turned our backs upon the snow and descended to our tents at which we arrived, very cold, at 7 A. M.

August being the month at which the snow is probably at its

* Heights ascertained by Lt. Colonel Waugh, Surveyor General.

highest elevation, I was enabled by a series of bearings to lay down a correct outline upon Dr. Hooker's Map of the snow line in the height of summer, and which from careful observations I calculated to be about 17,000 feet ; but some of the glaciers are far below this elevation, probably not higher than 12,500 feet. The great glacier at the foot of Kunchinjunga, visible from Darjeeling, is elevated about 16,000 feet.

At 8 A. M. we left our encampment and descended in a southerly direction over the loose rocks, crossing many running streams and pools of water. I particularly remarked, and that after repeated examinations, that none of these pools contained any living animal, either fish or animalculæ, nor had they any weeds, grass, nor indeed any organic matter in them. The only living things to be seen were two minute wrens hopping about the rocks. At 9 A. M. we reached a path, or rather a track marked out by the yak herdsmen by erecting large stones within sight of each other ; upon a fall of snow occurring, these form their only guides through this wilderness of loose rocks ; to us they were invaluable, as no one of our party had ever been where we were now threading our way, in the midst of a thick fog that obscured everything from our view. From the rocks we commenced ascending the ridge of which Gubroo forms the northern culminant point, and which separates the waters of the Ratong and Rungbi rivers. At 9.30 we reached the summit of the ridge, which to the east is precipitous, descending to the Ratong by a steep fall of about 8,000 feet. Looking back into the rocky basin we had left, and from which the fog had blown off, the view was very wild and interesting. Several landslips have taken place upon Singaleelah, uprooting large tracts of fir forest, some of which trees were seen with their roots in the air, their fine stems shivered and torn by the falling rocks.

We were much disappointed in not being able to see the view from the eastern face of the Gubroo range, as from our position, we should have been enabled to comprehend in one view all the glaciers lying at the foot of Kunchinjunga and Pundeem mountains, probably twelve in number, the nearest being five miles distant, as well as Jongri, situated upon one of the swelling buttresses of Kunchinjunga overhanging the right bank of the Ratong. Jongri

is a yak herd's summer-post, consisting of several stone houses at a probable elevation of 14,000 feet, and is the highest spot in this region where yaks are grazed during the summer months. From Darjeeling I was enabled during some very clear weather in October and by the aid of a glass, to fix the true position of Jongri. In Dr. Hooker's Map, Yangpoong is called Jongri. Perhaps the meaning of the name Jongri applies to both places, in which case Dr. Hooker's Map would merely represent an omission of the site Jongri and not a mistake. From these glaciers flow many streams, the united water of which forms the Ratong, a feeder of the great Rungeet. The eastern face of the Gubroo range is a handsome object in the view from Darjeeling, from whence it is seen as a bare, rocky, precipitous mountain. About 10 A. M. we reached a spot upon the almost bare rocks where there stands a yak herd's stone house composed of large slabs of gneiss rocks, some of the slabs being five feet in length. The house which is in a rather dilapidated condition, was supported by wooden posts, and was surrounded by a low stone wall;—we halted for breakfast;—in amongst the rocks, I noticed rhododendrons, blind nettles, rue, primrose, chrysanthemum, rose, dwarf rhododendron, fennel, geranium, polygona, dock and potentilla. This stone-house is a resting-place for the herdsmen and cattle when on their way from the valleys of Sikkim to Singaleelah.

We now commenced a rapid descent, and at 11.20 A. M. we reached Yangpoong, several hundred feet removed from the crest of the Gubroo range or upon the western slope of the mountain on a level with the fir forest or about 12,000 feet. Yangpoong consists of two large stone-houses covered with shingle, and a ruined house, this latter probably a kraal for enclosing cattle, an extensive mendong, covered with carved slabs and two tall flagstaves, bearing cloth flags covered with printed prayers. The inhabitants had gone to the north or to Jongri, so we examined their houses whose doors were merely tied up with a piece of string. We found the houses large, commodious and well filled with the usual Bhotia furniture, amongst which were some fine drums, trumpets and brass vessels. Though my Lepchas and Bhotias wandered about the houses examining and making fun of everything they could lay their hands upon, nothing was taken away, but my guide begged of me to take a large

pair of yak horns that were nailed to a post in the house. I had shown some desire to take back a good pair with me, but I could not consent in the absence of the owner to remove them, especially as they were evidently prized by the herdsmen from their superior size and shape.

Underneath the houses, which were built after the usual Bhotia fashion, there was accommodation for the yak calves.

From Yangpoong the descent was rapid, in the morning we had stood where nothing grew except a minute golden lichen, we were now at noon in a handsome forest, having passed rapidly through the various botanical grades of lichen, small flowers, juniper, rhododendron, fir, oaks, chesnut, to our tormentors the leeches. At noon we passed a small stone-altar called "*Mon Lepcha*" erected by the Lepchas, in honour of the "principle of evil;" we put up in a yak herd's hut on the left bank of the Rungbi, close to where it is joined by a fine stream flowing from the mountains to the east.

August 14th, 1852. Started at 6.15 A. M. in a southerly direction crossing the Rungbi over a handsome bridge close to our encampment. These bridges consist of a few saplings, their thicker ends being stepped under heavy stones, their lighter ends are brought together and form the crown of an arch; from this arch, loops of creepers hang down, into which one single sapling is laid, and forms the platform along which the traveller walks—we were now in a deep valley flanked on the west by the lofty Singaleelah, and on the east by the Catsuperri mountains, our path lay through a heavy forest a few feet above the Rungbi, a fine broad river full of rapids and water falls.

At 11 A. M. we arrived at a small patch of cultivation showing that we had descended 9,000 feet since yesterday morning. At this spot I measured one of the large black epiræ bird eating spiders, and found him to be eight inches across the legs; at 11.30 A. M. we reached Rungbi a Limboo clearance with four houses, near which was a small stone altar and some handsome trees of the fir species with very fine leaves.

In the deep valley of the Rungbi we met a party of Limboos, men, women and children all busy poisoning fish in the stream—our sudden appearance in the narrow path running through a thick tropi-

cal underwood seemed to take them by surprise. One old man carried a pot of tobacco and water in his hand, with which he continually anointed the leeches as they crept upon his naked legs, the first application caused the animals to roll off as if in agony.

At 2 p. m. after a very fatiguing march we arrived at two Limboo huts, perched up about 1,000 feet above the river, and commanding a fine view down the stream, which here turns off the east, flowing between the Pemionchi and Catsuperrri mountains. The northern flank of Pemionchi is much less steep than its southern or Kullait river-side. Looking up the Rungbi, nothing is visible but a deep dark forest-choked glen, down which the Rungbi could be heard roaring. Near Rungbi we saw a very beautiful waterfall, the fall was only twenty-four feet in height, but the arrangement of the rocks and forests and the numerous streams into which the fall was broken, quite made up for its small height.

We put up for the night at a Limboo clearance where the Soobah of the Rungbi valley resides, and where, upon our arrival, he was, in honour of the harvest, keeping up great festivities. The whole population amounting to about ten men and four or five women besides children, were all more or less intoxicated; it was a long time before we could get a hearing on account of the music and dancing, shouting and screaming that was going on inside the principal house; at last they all tumbled out, and the soobah, a good-natured creature, at the head of the party, led us away to a nice house, which was forthwith swept out and cleaned and a fire lighted for us. Two bamboos of chee, a fowl, milk and rice were sent from the banquet, upon which we regaled ourselves, our sixteen attendants formed a grand addition to the party who were with much cordiality invited to see the dancing and to partake of chee, which they did with a will; for before midnight the whole of them were fast asleep and very drunk.

I sent my compliments across to the soobah to say I should like to see what was going on; he forthwith came himself, conducted us into his fine house, where there were about thirty men and women sitting on the ground, hot chee was being served round to every one and in the middle of the room a young girl highly excited and most fantastically dressed was dancing to the beat of several drums. The

girl was dressed in a pretty coloured petticoat with two cross belts of cloth covered with cowrie-shells thrown across her shoulders, from which depended on the back two skirts almost touching the ground and fringed with the teeth of the wild boar, deer, and bear, the dried heads and beaks of a handsome bird, of the scarlet pheasant, and other birds heads, seeds, pheasants spurs, and bears claws, and her head was ornamented with long cocks' tail feathers. The dance, which was a slow monotonous shuffle at first, increased in spirit as the drums beat louder, the girl moving gracefully to the time faster and faster until she got into a perfect frenzy, wheeling round the room and the fire places at a fearful pace, the men's heads keeping time to her dance; shouts, and beating of drums increased the girl's pace until unable to controul herself, she dashed into the midst of a large fire that was burning in the middle of the room, and with her naked feet sent the fire flying all over the room, nor were her hands idle, for she commenced tearing down a hanging frame-work upon which all the household cooking apparatus and property is generally slung; the women of the house rushed forward to save their property, the men to put out the burning brands; all was uproar and confusion during which moment we slipped out. The next morning I sent for the little dancing maniac, she came in full dress, but was as demure and quiet as any Limboo damsel possibly could be. I examined her dress, and marvelled how so slight a creature could dance, and at such a pace with the enormous weight of cowries and cloth that encumbered her body.

August 15th, 1852.—Four hours' quick walking in an easterly direction through forest, brought us to the summit of the Pemionchi mountain.

At 10 A. M. we reached the monastery of Chanachelling, or as the Lepchas call it Sanachelling. It is a remarkable and curious looking stone building three stories high, pierced with doors and windows, ornamented with paint, horse-hair curtains, hanging balconies and flights of stone stairs. The southern side faces a garden which is enclosed by a stone wall, beyond which are several handsome chaitans or stone monuments. The goompa or monastery is thatched, the edges of the thatch are secured by long ratans being tied to it at all points and pegged into the ground; this is to guard against

the high winds that sometimes sweep across these mountains with resistless force. Chanachelling is a monastery for women, but since the Rajah's disgraceful conduct towards Drs. Campbell and Hooker when travelling in his country—which, together with the Rajah's refusal to deliver up his Dewan, the principal instigator in the outrage, and on which account the two Morung Purgunnahs lying at the foot of the hills and yielding a yearly revenue of 23,000 rupees, and that portion of the hills now known as the Darjeeling Territory, and for which the Rajah received 3,000 per annum from the British Government, were confiscated from the Rajah,—the yearly allowance hitherto granted by the Durbar to the Goompa has been stopped, and we found that all the nuns had gone over the snows to Choombi in Tibet, leaving one Lama in charge of the vast house, its library, images and religious furniture. The interior of the house was as curious as its exterior. The portico at the entrance of the Goompa has the walls painted with a series of figures larger than life in the true Chinese style;—bright colours, bad perspective and extravagant action. The drawings represent Chinese officers of various grades bringing in frantic haste presents, such as strings of precious stones and other rare articles to a group of images in an inner room, the figures are so painted that they appear hastening into the room where a grand idol sits, flanked on either side by smaller images. The eyes of one of the mandarins or high officers were so painted that they really looked as if they were about to spring out of their sockets. The tension of the eye-ball was remarkably well-painted. The flowing drapery, the armour, faces and jewels upon the figures were all very well and minutely painted.

In the praying room up stairs, thirty-six feet long by thirty broad, were arranged round the book-cases for the reception of the books of prayers of which I counted 86 volumes bound in silk and each labelled upon three slips of various coloured Chinese satins. The roof of the room is supported upon six handsomely carved and painted wooden pillars, carved in a truly Chinese manner; down the eastern side of the room were ranged eight curiously carved side-tables behind which in recesses were seated twelve gods, five feet in height and painted so as to resemble life. Immediately to the left of the altar which was divested of most of its ornaments, was a

group of painted figures—five feet in height, too indecent to make any further mention of. The altar consisting of a raised platform had upon it a few conch shells—brazen cups with water in them—bells—small brazen images and drums, all of Tibetan manufactory and very beautiful, especially the brass work which is chased and carved in a very minute style. Four heads of Indian corn were also hung up in front of the altar. In one corner of the room stood a prayer-drum five feet in height and supported between strong upright wooden posts. Their drums called “Mane” are found with all sects of Buddhists in or near the Himalayah, they contain painted and written prayers and are made to revolve from north, round by east, the revolving Lama repeating the words “Om Mane pemi hom.” These prayer-drums vary from a few inches in length to several feet in height. The former are turned by the hand, the latter either by wheels or by water power.

The Lama left in charge of the convent could not appear, as he was undergoing either penance or was under a vow not to mingle with the world on this day; we conversed with him through a door, he speaking in the Bhotia language, our Lepchas interpreting; he sent us out nice soft rugs to sit upon, and a gallon of tea. He was most anxious that we should stay and sleep at the convent, and have a long talk with him on the morrow; he said all the brethren had experienced much pleasure from Dr. Hooker's visit, and assured us that our having come so far to see the convent, was an honour and that we were welcome. The fact is, these monks, perched upon lofty mountains and shut out from all the world, lead a life of monotony; a traveller breaking in upon this monotony and conversing about the world, its politics and people, is warmly welcomed and treated with great kindness.

A hot walk of three miles along the crest of the mountain brought us to Pemionchi, where there is a very handsome Goompa of three stories; it is eighty feet in length by about forty broad. As we approached, we saw one of the Lamas, who was dressed in his long garnet-coloured cloth robes, beating a gong to call all the monks to prayers; we were fortunate in seeing the whole establishment go through a religious performance upon the occasion of the death of a brother monk.

About twenty intelligent looking monks—old and young, all dressed in the garnet-coloured flowing robes with under clothes of richly figured Chinese silks and satins, their hair cut short, assembled at the sound of the gong; they received us with great kindness and provided us with seats at the entrance to the Goompa, where the ceremony of chanting prayers for the dead was about to take place. The walls of the vestibule in which we sat were highly ornamented with painted figures as large as life, representing a Tibetan deity on a white horse; a female deity half-woman half-snake; and another deity upon some frightful beast.

Looking through the capacious door or up the body of the temple, the sight reminded me of a Catholic Chapel during the performance of high mass. Three pillars highly ornamented, gilt and painted, stand on either side of the aisle which terminates at the high altar, or rather a deep recess filled with eight or ten strange images as large as life. To the right of the recess there was a square metal tray, containing a hundred lights which shone brightly in the darkened room, the walls of which are painted from floor to ceiling with the likenesses of gods and goddesses, with skulls and tridents, things on earth, and with things that never were on earth, so beautifully confused and confounded that to attempt to analyze or particularize what there was or what there was not, would be a matter of difficulty. The colours were all of the brightest hues and pleasing to the eye.

On both sides of the aisle were ranged felt seats raised a foot from the ground, upon these the twenty Lamas took their seats and opened the ceremony by chanting a hymn, and finer bass voices I never heard; an old Lama sat near the altar on the right hand side and immediately in front of him and standing in the centre of the aisle was a figure dressed in the defunct Lamas clothes, a crash of cymbals, and a loud blowing upon the human thigh-bone trumpets closed each hymn, of which they chanted some twenty; two boys dressed as Lamas, during the whole of the service were very actively engaged in serving out hot chée from Tibetan metal tea-pots to the singers, who each held out his own wooden tea-cup produced from the folds of their capacious robes, and when emptied and *licked* clean, these were put back again into their breasts; near the door and close

to where we stood, incense was burning in a silver dish, a handsome silver flagon containing water also stood close to us, the flagon was of Chinese manufacture highly chased and ornamented, with two hideous Chinese dragons as its handles.

Service being over, we walked round the temple conversing with the Lamas through interpreters, our conversation lasted two hours, during which we were made to drink a quantity of chee and tea, a side of beef was also presented to us, accompanied by plantains, rice and vegetables.

The conversation was principally concerning the Rajah of Sikkim; and of his crippled condition since the British Government had deprived him of his land in the plains, the only land that yielded him any revenue; they deplored the outrage that had been committed upon Doctors Campbell and Hooker at the Cholah pass, and said that it was all the Dewan's doing, but that as the Dewan was intimately connected with the Rajah by marriage, the Rajah could not deliver him up to the British Government, when he was requested to do so. They gave me to understand that the Dewan was now a beggar, that having ruined his master, he was suffering for it. The allowance of 2,000 rupees and various presents that were annually given by the Durbar to the Pemionchi Goompa had been stopped, consequently they would all be obliged to go over the snows into Tibet, or starve. They certainly were very far from the starving point when I saw them, for a more jovial, fat, good-natured set of mortals could not be seen; they were the very pictures of jolly friars.

I particularly asked them if they had any objection to English gentlemen visiting their country and Goompas, their reply was, "None whatever: whoever will honour us with a visit, we will receive them with pleasure, give them food and a house to live in," and begged of us to pay them another visit. They said we were strange people and pointing to our legs that were bleeding from fifty leech-wounds, asked us, why we underwent such trouble, labour and misery when we might sit at home and be comfortable. "Yes" one fine intelligent Lama said, sighing: "we were all happy and at peace amongst ourselves before any English gentleman had penetrated our hills, but since then, all has gone wrong; but strange to say from no fault of yours, but of our own."

The view from Pemionchi, 7,000 feet, commands a fine view of the snowy range and of the greater part of Sikkim. Numerous Goompas perched upon mountains are seen to the east; the Rungeet river is seen 6,000 feet below and Darjeeling to the south—Tassiding Goompa appeared at our feet.

A great portion of the eastern end of the Pemionchi mountain was once encircled with a stone wall, the remains of which are still seen and was the capital of Sikkim. This place was sacked by the Goorkas, and the valuable library burnt in 1787, A. D. when the Goorkas descended the Tumbok pass (Islumbo of Hooker) and ravished the whole of Sikkim.

The summit of Pemionchi mountain is composed of mica schist of great brilliancy, shining in the sun like the nacre of a pearl oyster. The schist is not horizontal, but carved and distorted, presenting in the separation of its strata, huge conchoidal pearl-like surfaces.

Left Pemionchi at 2 P. M. passing several chaitans and descended 2,000 feet on the southern face to the great Gayzing Mendong, which is 615 feet in length, about ten in height, and as many broad; it is highly ornamented with well-carved slabs, the word "Om mane pemi hom" predominating. At the north end there stands a chaitan; and at the south end a tall flat slab of stone nine feet in height and covered with inscriptions, has been erected in a bed of masonry. The slab has had its head snapped off and just below the fracture, the writing commences. I am sorry I did not secure an impression of the inscription, but great fatigue had prostrated my strength, and I was fit for nothing.

Dr. Campbell in his journal of a trip to Sikkim—see Asiatic Society's Journal for May, 1849—mentions that this Mendong is the largest in Sikkim—the labour that has been expended upon this wall is immense, there being no less than 708 stone slabs all elaborately carved with letters five and six inches in length, some of the legends are arranged in circles ornamented with flowers and contain other words than the usual "Om mane pemi hom;" one stone written in the Outza (Tibetan) character had the words "Om, a, hám, túm-phí" arranged in a circle. These phrases appear to have some hidden meaning, but unknown to the generality of the Lamas; however, they say that they all apply to God, each syllable bearing its own

peculiar virtue. An intelligent Lepcha with me who read the inscriptions freely, and also copied some for me, rendered the words "Om mane pemi hom" into the following prayer "Oh God receive me into Thine essence when I am going;" (dying); absorption into the divine essence being the Buddhist's idea of heaven, I have no doubt that the prayer, meaning whatever it may do in strict reality, is used by the Buddhists in that sense.

On our descent, we met a slave girl toiling up the steep ascent laden with a large bamboo full of water for the use of the monks. This girl had been kidnapped from Bengal in her infancy and had forgotten her native language, she was in good condition, fat and plump, but with a melancholy expression of countenance, an expression only seen upon the face of a slave. To prevent people being kidnapped from Bengal and from our own hill territory has long occupied the attention of our government; at every bridge leaving the British territory there is a guard; over these bridges a slave is never taken to Sikkim and no slave who may seek shelter from Sikkim is ever sent back again. Slavery and its attendant miseries have in an indirect manner been the cause of the Rajah's losing his country; mild reforms proposed by our government with regard to the existing slave-trade in Sikkim roused the anger of the Sikkim Durbar which led to direct violence offered to the person of our government representative.

August 16th, 1852.—Descended to the Kullait river in two hours, the path the whole way displaying mica schist; saw small red monkeys, doves, and green pigeons (koklah) in the forests.

To our annoyance we found that all the cane-bridges over the Kullait had been cut away to prevent any of the people from Hee, and the neighbouring clearances crossing to Pemionchi, the whole of the inhabitants near the southern bank of the river being more or less affected with dysentery, such is the horror and alarm with which that complaint is viewed by these people. Men were sent up and down the river for miles but without success, all the bridges had disappeared and as the river was at its height, very deep and impetuous, we were at our wits end, as I particularly wished to avoid the hot and miasmatic valley of the Rungeet, which appeared to be our only alternative. Men were again sent off down the stream to

see if there was any possibility of crossing; a spot was at last found half a mile above the junction of the Kullait and Rungeet rivers where some gneiss rocks jutted into the river, diminishing its width considerably. Here our Lepchas, in the space of two hours, threw a strong bridge across the Kullait made of bamboos and saplings retained in position by heavy stones. It was an exciting moment when a man crawling forward upon the supple and bending bamboos overhanging the boiling headlong current below, managed to effect a junction with the opposite bank.

The rocks in the Kullait are a fine gneiss in company with masses of white quartz.

A flock of black cormorants flow up the river, as we were sitting on the rocks, watching the bird-eating spiders letting themselves drop from great heights from the branches of the trees overhanging the water, and seizing insects and flies upon the rocks. The movements of the spiders were exceedingly rapid and precise, seldom missing their prey. From a living specimen I wound off upon a piece of card a good hank of a beautiful golden yellow web, resembling floss silk, which however turned into gum upon getting wet.

At noon we crossed the Kullait and after repeated halts on account of the suffocating heat arrived at a small level clearance near the summit of Rinchinpoong, where there is a Lepcha and Bhotia village of ten houses, at an elevation of about 6,000 feet. The name of the village is Yansúnkúm, the inhabitants of which had an abundance of good cows, pigs and poultry. I was importuned to prescribe for a man suffering from dysentery; having no medicine-chest with me was no excuse, for I was implored to make some sort of medicine to effect a cure; I accordingly had a quantity of worm-wood gathered and pounded and stirred up in brandy, to which was added nutmegs, cinnamon, and cloves, all reduced to powder; doses from a bottle full of this strange mixture well diluted with water were recommended to be taken three times a day.

Here, from sheer fatigue and from severe inflammation of my legs and ankles caused by leech-bites, we were obliged to halt a whole day. Let no one who has never ventured into the Himalayah mountains imagine that travelling in these mountains is anything but downright and real hard work; it is seldom a traveller is so fortunate

as to have dry clothes on; his food is of the plainest quality and often very scanty. Dr. Hooker was reduced to coarse boiled rice and Chili vinegar; this is poor fare for a man walking up hill and down dale for ten hours a day.

August 18th, 1852.—Left Yansunkúm at 6.30 A. M. and ascended to the summit of Rinchinpoong, a few hundred feet above the village—saw several chaitans on the road; all the hills near Darjeeling appear to have been, in some former age, much more densely inhabited than they are now, mendongs and chaitans appearing upon almost every ridge and peak of any note.

The rocks still mica schist. Passed the village Nam-gon-kum and commenced the descent of Rinchingpoong at 9.15 A. M.; crossed at 10.40, the torrents; Richi flowing from west to east and falling into the great Rungeet, which river we could see turbid and swollen some thousands of feet below us; commenced the ascent of Singrioong at 11 A. M. and reached the summit at 0.45 P. M.; a little to the west of the point of crossing this ridge, stands a conical peak, named Bik-sadong.

At 2 P. M. commenced the descent of Singrioong and by mistake taking the wrong path, we had to return 2,000 feet up a steep ascent. The heat was so overpowering, the jungle so dense, the air so quiet that a feeling of faintness crept over me, which deprived me of all strength; upon reaching the Ruttoo stream at the foot of Singrioong where it dashes over a high rock, I could not resist a plunge into the river. It was late in the day, any more ascent, worn out as we were, was impossible, and to sleep in this deep miasmatic valley was almost certain death from jungle-fever. Fatigue and the sight of the cool-stream overruled all scruples, we slept here. A fortnight subsequently, I was in bed delirious from jungle-fever, but I feel grateful that no one but myself suffered from my imprudence in sleeping in this deep valley.

On the way down Singrioong passed over one of the travertine lime deposits, common upon this spur, and upon Chakoong to the south.

In the Ruttoo are quantities of rolled and water-worn pieces of blue, pink, and other delicately tinted slates. The rock in situ is gneiss.

August 19th, 1852.—Left the banks of the Ruttoo at 7 A. M. and ascended Chakoong by a very steep path, reached the summit at 8 A. M., a rapid descent and ascent over several small spurs, brought us at 11 A. M. to the Rumnam river, which we crossed by a very good cane-bridge.

Upon the southern flank of Chakoong I saw several large blocks of sandstone, black clay slate and gneiss. The jungle was too dense to allow of any examination of the ground. In the Rumnam, gneiss veined with white quartz is the only rock to be seen.

At 1 P. M. we reached the guard-house at Goke by an excellent government road which commences at the Rumnam river; four sets of zig-zags and many easy gradients, render the road accessible to horses. The change from steep and narrow footpaths, to a broad road was most delightful. There is much cultivation upon the spur and many substantial Limboo houses. The most remarkable feature upon the Goke spur is the large bamboo forest through which the road has been cut; bamboos ten inches in diameter and a hundred feet in length may be had in any quantities. These bamboos, called by the natives "Choongas," are used at Darjeeling, instead of the common leather-bag (mussak), for holding water for domestic purposes; they are also used as milk-pails, also for holding chee, ghee and other liquids. Amongst these bamboos, I saw the large black squirrel, measuring about three feet six inches from the nose to the tip of the tail. From Goke half an hour's descent brought us to the little Rungeet where our friends had sent us ponies and some bread; a man having been sent on two days ahead to announce our approach; at 4.30 P. M. we reached Darjeeling by the Tuqvor spur, having been away eighteen days, during which we had travelled 360 miles on foot or at the rate of twenty miles per diem ascending 36,000 feet and descending 31,000 feet, to reach an elevation of 14,500 feet distant in a direct line thirty-seven miles from the point of departure. These figures may in a slight measure convey some idea of the labour that has to be undergone by a traveller in the Himalayahs. The longest march made during the trip *in a direct line* was ten miles; the average distance was only five miles, each march occupying eight hours steady walking.

Here I part with my Lepcha guide and Lepcha companions, testi-

lying at the same time to the good nature and good temper of these interesting people, whom no hardship or discomfort appears to ruffle. After travelling for nearly twenty years amongst the “*noli me tangere*” Hindus, who, fenced about with a cruel caste, refuse all approach to familiarity, sociality, or even kindness with any one, even with one of their own caste, the change to Lepcha followers for Hindus is most pleasing: on one hand there is the brooding, moody Hindu, exchanging no thought with any one; eating his food in silence and alone; his fear lest any one below him in caste should touch him; his dread lest any of the hundred omens observed between his rising up in the morning and his lying down at night should not have been properly divined and acted up to; the cruel bondage to which his every action in life is subservient, makes the unfortunate Hindu any thing but a pleasant companion: on the other hand we have the free, happy, laughing and playful, no-caste Lepcha, a child of the mountains, modest, social and joyous in disposition.

I have watched the Lepchas after a good day's work playing amongst themselves, either racing on foot, playing at hop-step and a jump, quoits, wrestling and jumping; or walking up to a companion and throwing his arm round his neck, a Lepcha will pretend to be asking some question, in the middle of the pretended conversation, his friend receives a violent kick from behind, he turns round to see who is the culprit, no one is there and his friend has disappeared screaming with laughter at the trick he has played a hundred times before; a chase takes place, they run, they double, the culprit is caught, they wrestle and end by rolling upon the sword locked in each other's arms, they rise in good humour and go off to play the same trick upon some one else. I frequently brought these pastimes to a temporary close by offering the Lepchas a plate full of rice, ham, sausages, or perhaps half a raw flitch of bacon; panting from these healthy exercises, they would take the viands, their very teeth grinning thanks, sit down on the grass and divide the mess amongst each other.

*Notices and Descriptions of various Reptiles, new or little known.—**By E. BLYTH.*

TESTUDO PHAYREI, nobis. Great Burmese land Tortoise. Carapax smooth, as in *T. RADIATA* and *T. ANGULATA*, but much flatter; oblong, subquadrate, its free marginal plates reverted and moderately serrate. Nuchal plate broader than long. Caudal plate *double*. Gular plates longer than broad, moderately notched: anal broader than long, and deeply notched. Beak unemarginate. Fore-limbs covered with very long and thick imbricated scales, much as in a Pangolin; the claws elongate, strong and thick: similar great elongate scales at the heel; and a group of five principal obtuse spines on either side of the tail, the medial of them remarkably strong and thick. Two or more smaller spines or thick elongate scales above the tail. Colour wholly black, or mingled more or less with buff-yellow. In the young, the scales are probably of the latter hue, with gradually increasing black centres. Limbs deep brown; some of the claws yellow in some specimens: the head and neck paler brown, strongly tinged with yellow. Our largest specimen is 20 in. long in a straight line, or $22\frac{1}{2}$ in. measured over the curve of the carapax, from front of nuchal plate to middle of caudal notch: greatest breadth $14\frac{1}{2}$ in. or $20\frac{1}{2}$ in. following the curve, from one obtuse lateral angle to the other. Height $1\frac{1}{4}$ in. Head to occiput $4\frac{1}{2}$ in. The shell of this individual is wholly black, with merely a few slight indications of the ochreous-yellow colouring: all the claws deep brown. Another, rather smaller, has the appearance of great age, with most of the plates of its carapax more or less completely united, so that the form of some cannot be traced. Colour irregularly mingled black and dull buff-yellow; the plastron chiefly black; and several of the claws are yellow wholly or in part. Hab. Arakan; Tenasserim Provinces. Specimens presented by Capt. Phayre.

T. ELONGATA, nobis. Small Burmese land Tortoise. Carapax elongate, becoming more so and quite smooth in adults, wherein it approaches to a semi-cylindrical form; flattish, sub-even, the three medial vertebral plates lying almost in a plane, and the free marginals

slightly reverted. Caudal broader than the last vertebral. Nuchal twice or thrice as long as broad, and even with the borders of the anterior marginals. Gulars not notched, or but very slightly so. Caudals divergent from base, and transversely elongate-triangular, broader than long, forming a slight lateral notch with the ventrals. Beak laterally notched or distinctly three-pointed. Scales of the limbs rather small, contrasting much with those of the preceding species. Colour of half grown specimen orange-yellow, each plate having a large black centre, which mostly disappears with age, leaving a few more or less radiating black spots on those of the carapax, and often a black spot on only the large medial plates of the plastron. Head and limbs brown, much tinged with yellow. Length of an adult 13 in. in a straight line, by 8 in. across, or rather more towards the hinder part of the body. Height $5\frac{1}{4}$ in. Head to occiput $2\frac{1}{4}$ in. Hab. Arakan. Specimens presented by Capt. Phayre. According to Dr. Helfer, Tortoises abound in the Tenasserim Provinces, and are much eaten by the Peguers and Karens, who train dogs to search for them.

In India proper and also in Ceylon, only one species of land Tortoise occurs, the *T. STELLATA*, Schweigger, a figure and interesting notice of which are given by Capt. Hutton in *J. A. S.* VI, 689, under the supposition of its being *T. GEOMETRICA*. The latter is a S. African species, very similar to *T. STELLATA*, but having a distinct nuchal plate, which *T. STELLATA* does not possess, and exhibiting certain other distinctions. Among some Tortoises, however, presented to the Society by Capt. Sherwill from S. Africa, are two small specimens of *GEOMETRICA*, and one full grown example which can in no way be distinguished from the Indian *STELLATA*. The latter does not inhabit Lower Bengal, and is rarely brought alive to Calcutta. One much more commonly brought here is the *T. RADIATA*, Shaw, a larger species remarkable for its very hemispherical form, and which is said to be indigenous to Madagascar, in which case it is probably brought to India from the Mauritius. The very large specimen referred by me to *STELLATA* (v. *actinodes*) in a note to p. 462 *ante*, I now think, after much consideration, to be distinct, and shall indicate as

T. MEGALOPUS, nobis, *n. s.* Similar to *T. STELLATA*, but attaining

a much greater size, with proportionally much larger feet and claws. The colours duller and therefore less strongly contrasting, and the lines radiating from each boss of the carapax more numerous. Fore-feet with two large claw-like scales of equal size behind the palm, and no others approaching them in size. Claws of hind-feet fully twice as large as in adult *STELLATA*. Length of carapax, measured in a straight line, 12 in., by $7\frac{1}{2}$ in. in diameter-breadth. Hab.——?

There are several living specimens about Calcutta, of the great Seychelle Tortoise, miscalled *T. INDICA* by Gmelin, and under which Mr. Gray unites no fewer than seven of the supposed species admitted by M. M. Dumeril and Bibron. According to Dr. Schlegel, "The Indian Tortoise [so-called], probably indigenous to Madagascar and the neighbouring isles, has been acclimated in the Gallapagos Isles, in California, and on several other points on the western coast of South America:" but we have been assured, on good authority, that numerous specimens kept in gardens in the Mauritius, have all been brought from the Seychelle Islands in the first instance. that they are still commonly brought from those islands to the Mauritius, and thence we believe the few in India have been imported. It is most assuredly not an Indian reptile, nor have we heard of its ever propagating in this country.*

* In the Mauritius I am informed that it is eaten. The largest I have seen is in my own possession, alive, and measures 4 ft. 4 in. in length over the curve of the carapax, or 3 ft. 5 in. in a straight line; transversely 4 ft. 2 in. over the high arch of the carapax, or in a diameter line 2 ft. 2 in.: height, when not raised upon the legs, *i. e.* height of shell, $20\frac{1}{2}$ in.; when walking, the shell is lifted fully 6 in. from the ground, if not more: circumference of hind-foot $17\frac{1}{2}$ in. A scientific friend, recently from Jamaica, assures me, that this great Seychelle species is quite distinct from the great Gallapagos Tortoise, which has bred and multiplied in Jamaica and other W. India islands. Curious, that these gigantic land Tortoises (diminutive, however, in comparison with the extinct Indian *COLOSSICHEILIS*.) should thus be indigenous to small oceanic groups of islands, in each case remarkable for the peculiarities of both their *fauna* and *flora*. We are reminded of the great wingless birds (Dodos and Solitaires) of the Mauritius, Bourbon, and Rodrigues; those also of N. Zealand and of Madagascar; the *MEGALODIUS* of the Nicobars, and its congeners of other islands; the singular and quite recently extinct great Parrot of Philip Islet near Norfolk island, with its sole congener in N. Zealand; the Owl-like

From Afghanistan Mr. Gray describes a *T. HORSEFIELDI*, which he suggests may be *T. IBERIA*, Pallas, *Faun. Casp.*, t. 5. The Society's Museum possesses a land Tortoise from that country, which however belongs to the genus *HOMOPUS*, having but four claws to each foot. It may be thus described.

HOMOPUS BURNESII, nobis. Carapax squarish, depressed, broadest posteriorly, where the free marginals are a little reverted and distinctly serrate. Anterior border straight, the nuchal plate well developed. Caudal as broad as the last vertebral, and broader than the other vertebral plates. Nucleus of each lateral or discoidal plate near its inner or upper border. Gular plates longer than broad, the two forming a nearly equilateral triangle. Anals oblong, divergent, forming a rather deeply notched border. Scales of forelimbs rather large, and those to the front mostly uniform in size. Claws elongate, or not worn down by attrition. Beak three-pointed. Colour yellow above, with black nuclei to the plates: those of the plastron black with yellow border. The head and limbs appear to have been yellowish. Length of carapax 6 in., by $5\frac{1}{4}$ in., measuring straight. Height $2\frac{7}{8}$ in. Head to occiput $1\frac{1}{2}$ in. This large specimen was procured in Afghanistan by Sir A. Burnes. A very small *Homopus* in spirit, also from Afghanistan, is doubtless the young, though exhibiting some remarkable differences in the shape of the upper plates. In this the nuchal is roundish, or as broad as long;

nocturnal Cock too of N. Zealand, also close upon extirpation, &c. The majority, if not all, of these islands appearing to be remnants of what may be comparatively termed continents, each with its peculiar centre or centres of creation.

In all these supposed reliques of ancient lands, with the chief exception of Madagascar, mammalia are rare, and are chiefly or wholly *Cheiroptera*, *Rodentia*, and *Marsupialia*; the two former orders comprising the only placental mammalia of Australia; and one species of each of these placental orders being the only known indigenous mammals of N. Zealand, though a large Badger-like animal has lately been reported in the latter country, in all probability a marsupial. Madagascar is very remarkable for the extraordinary development of the quadrumanous group of Lemurs, among the higher placental mammalia; and has even a rodent Lemur in *CHEIROMYS*, as Australia has a rodent marsupial in *PHASCOLOMYS*. Its other placental mammals are mostly of peculiar genera, unknown even on the neighbouring continent of Africa; and no marsupial has been discovered there.

and all the vertebrals are about equally broad. Colour dull yellow throughout. Presented to the museum by Dr. Allan Webb.

Of the numerous true Terrapins (EMYS) of the Gangetic rivers, only three species are common in the vicinity of Calcutta; and adults of all are rarely met with. These are—*E. THURGI*, Gray, which attains to a much larger size than has hitherto been described, adults measuring 20 to 22 in. (straight) in length of carapax; *E. TECTUM*, Gray, the adults of which measure similarly 6 in.; and *E. HAMILTONII*, Gray, the adults of which measure similarly 5½ in. The only other species we have yet met with from this vicinity is *E. TENTORIA*, Gray, one young specimen only. This Mr. Gray describes from the Bombay Dukhun, where procured by Col. Sykes; and Sir Alexander Burnes obtained an adult from the Indus, which is now in the Society's museum. These two specimens differ in some respects from each other, also from Mr. Gray's description, and from Buchanan Hamilton's coloured figure, the two latter again presenting certain discrepancies one from the other. The species is nearly affined to *E. TECTUM*, Bell, but at all ages has the median keels to the first three vertebral plates much less developed, and the form of the whole carapax is conspicuously flatter and broader. A peculiarity of both species consists in the peculiar decanter-shaped form of the fourth vertebral plate. Comparing the adult of *E. TENTORIA* from the Indus (length of carapax, measured straight, 6½ in.,) with an adult of *E. TECTUM* from the Hughly (carapax, similarly measured, 6 in.), the first vertebral plate is proportionally much broader in the former, pentagonal, narrower to the front, with a broad straight transverse base posteriorly, and the keel little developed; whereas the first vertebral plate of *E. TECTUM* is pentagonal, broader to the front, with a rounded posterior base, and much more developed keel. In the former, the first vertebral is considerably larger and somewhat broader than the second, whereas in the latter it is sub-equal or even rather smaller than the second: in adult *E. TENTORIA* the second vertebral plate is hexagonal but almost square, and rather broader than long, with the keel nearly obsolete; in *E. TECTUM* somewhat pear-shaped, truncate to the front and narrowing and curving off posteriorly, with the keel strongly marked: the third vertebral plate of adult *TENTORIA* is quadrangular, longer by

half than broad, with the keel quite obsolete on the anterior half, and flat and but little raised posteriorly; in *E. TECTUM* it is hexagonal, with the keel strongly developed and prolonged backward. A narrow black line is continued along the spinal ridge of *E. TENTORIA*; whereas the middle of the ridge is broadly white in *E. TECTUM*, bordered by a black line on either side. The plastron of *E. TENTORIA* is blackish-brown, with a pale border to each plate; in *E. TECTUM* pale with two or three distinct blackish patches on each plate. Comparing the young of the two species, the first vertebral plate forms a much broader pentagon in *E. TENTORIA*, being equal in breadth to the second; in young *E. TECTUM* the first vertebral plate is considerably narrower than the second: the second vertebral plate in young *TENTORIA* forms a heptagon with the base posteriorly; in young *TECTUM* a pentagon with rounded apex and anterior base: the third in young *TENTORIA* is subquadrilateral, somewhat longer than broad, with the keel a little produced posteriorly; in young *TECTUM* a pentagon with its base to the front, and the keel much broader and more prominent. Yet, notwithstanding these great differences of detail, and also of the colouring of the head, neck and limbs, the two species are very liable to be confounded on a superficial glance.

* According to M. M. Dumeril and Bibron, the *E. TRIJUGA*, Schweigger, was obtained by M. Duvaucel from the "salt-water lake" lying east of Calcutta; but of the numbers of *Terrapins* which we have seen from that locality, we have sought in vain for this species, which belongs to the peninsula of India, and is the only one which has been there observed, with the exception of Col. Sykes's specimen of *E. TENTORIA*.* In Ceylon it is replaced by the very distinct *E. SEBÆ*, Gray.

On the Arakan coast, adults of *E. DHONGOKA*, Gray, approaching to 2 ft. in length of carapax, would appear to be very common; but the only young specimen which we have seen of this species was sent down alive from Asám by Major Jenkins, and is now

* Since the above was printed, we have obtained another *EMYS* from the vicinity of Chaibasa, which appears to be the young of *E. DHONGOKA*; and Mr. Jerdon assures me that a large species abounds in the Nerbudda, 2 feet and upwards, which is probably the same: it is not referred to in Mr. Jerdon's paper, p. 463 ante.

mounted in our museum. The adults have much the appearance of *TETRAONYX LESSONII*, D. and B., but are readily distinguished by having five instead of four claws to the fore-feet. *T. LESSONII* abounds at the mouth of the Hugly, and great numbers are brought to Calcutta, where they are eaten by particular castes of Hindus, and are even kept for sale in tanks. Though the water-Tortoises generally are much used as food, the species chiefly consumed, or at least which are brought in greatest quantity for that purpose, are *TETRAONYX LESSONII* and *EMYDA PUNCTATA*. The latter appears to be the most generally diffused species of Tortoise throughout the whole of India and Ceylon, and is very abundant in Lower Bengal, burrowing deep into the beds of tanks when the water dries up. A large one which escaped into the Society's compound was found several months afterwards in a healthy state, buried among the roots of some guinea-grass.

A small and evidently young *EMYS* from Arakan or Tenasserim would seem to be

E. OCELLATA, Dumeril and Bibron. The colouring agrees with the description: the details of structure less completely. Length of carapax 6 in. (measured straight). It is allied to *E. THURGI*; and, as compared with a specimen of *E. THURGI* of the same size, it is at once distinguished by having the whole under surface of the shell spotless yellowish-white, and each lateral or discoidal plate of the carapax is marked in the centre with a large round reddish-brown spot, surrounded by a pale areola; an interrupted black line along the spinal ridge, which is raised into keels on the first four vertebral plates. These are of equal breadth, whereas in *E. THURGI* the first is much narrower than the others. Nuchal plate twice as long as broad, and throughout equal; whereas in *E. THURGI* it is triangular with posterior base. Hindmost vertebral plate much narrower than in *E. THURGI*; and the posterior marginals and especially the caudals are much smaller than in that species. Colour of the upper parts greenish olive-brown, with the ocelli before mentioned, which probably become obscured with age. Head brown above, with yellow superciliary line meeting its opposite over the nostrils, and another proceeding backward from the eye. Limbs and under parts apparently yellowish without markings.

There is a species of Chameleon in the Society's old collection, the origin of which is unknown, but it would appear to be undescribed. It would seem to be most nearly affined to *C. CUCULLATUS*, Gray, and has the occipital flaps of both that species and *CH. DELEPIS*, Leach.

CH. VERRUCOSUS, nobis. Body minutely tuberculated, with larger tubercles regularly interspersed throughout. The latter are smaller and contrast less strongly on the limbs and tail, and are more thickly set upon the limbs. Ridges of the back and throat serrated, the tubercles becoming smaller towards and upon the tail. Beneath, the tail is smooth, though tending to exhibit a slight serrature towards its base. Superciliary ridges not uniting together, either before or behind; and a small medial occipital ridge continued to the base of the two lateral flaps or lappets of skin. Colour of the specimen blanché; but there is a strongly marked black streak proceeding backward from the axilla, and surmounted by a white streak, the two occupying the space which may be concealed behind the humerus. Length $11\frac{3}{4}$ in., of which the tail is 6 in. Hab. unknown.

LEIURUS BERDMOREI, nobis (*Geckoidæ*). Agrees with Mr. Gray's definition of *LEIURUS*, except that there is no appearance of the toes being webbed at base. Colour grey, with 4 longitudinal blackish streaks along the back and sides, 3 or 4 interrupted cross-bands of the same on the upper surface of the tail, a medial black streak on the nape, and others successively diverging on each side of it, and a black streak from before the eye continued to the shoulder. Some mottling also on the limbs. Hab. Mergui, where procured by Capt. Berdmore.

The genus *STELLIO* is new to the Indian fauna. A species from Upper Hindustan cannot be safely separated from the Arabian *ST. CYANOASTER*, Ruppell, unless upon comparison of specimens. The tail, however, appears to be longer; and there is a slight gular *fanon*. Specimens vary much in colour. An adult from Mirzapore, presented by the late Major Wroughton, measures $12\frac{1}{2}$ in. long, of which the tail is 8 in. Throat blue, spotted over with yellowish-white, deepening to purple on the *fanon* which is less spotted. The rest of the lower parts are yellowish-white, marbled on the trans-

verse fold of the neck and immediately behind it with blackish, and spotted with the same on the breast and belly, the spots becoming less numerous on the latter. Upper parts dark olive-green, the back and sides speckled over with whitish. Two smaller specimens were presented to the Society by L. C. Stewart, Esq. now of H. M. 61st Regt., from Wuzerabad. Length of one $8\frac{1}{4}$ in., of which the tail measures $5\frac{1}{2}$ in. In these the under parts are yellowish-white, suffused or marbled with bluish or pale dusky on the throat, and slightly spotted with the same on the breast. Upper parts paler olive-green than in the large specimen; the back and sides speckled with yellowish-white in one, as in the adult example, with traces of dusky marbling on the back; in the other, the back is much more marbled and blotched with dusky, and has only a few largish dull white spots on the back and sides, while the limbs and tail are banded, and there are three dark transverse lines over each eye. If new, *St. INDICUS*, nobis.

Genus *CALOTES*, Kaup. We have now nine well marked species of this genus in the museum. The first three are distinguished by a pit or fold before the shoulder, which is lined with minute scales.

1. *C. EMMA*, Gray (vide "Proceedings of the Asiatic Society" for May, 1853, p. 413.) Inhabits Mergui, and probably other parts of Burma, ranging northward perhaps to the Khásya hills; but extremely doubtful as an inhabitant of Afghanistan. We have elsewhere expressed our suspicion (*loc. cit.*) that collections made by the late Dr. Griffith in Afghanistan and in the Khásya hills had become mixed and confounded, and hence that Mr. Gray had been led to assign his *CALOTES EMMA*, *C. MARIA*, *C. MINOR*, and *SALEA HORSFIELDI* to Afghanistan, and two of the four to the Khásyas also; countries so extremely different, that it is most improbable that the same species would be found to inhabit both of them.

2. *C. MYSTACEUS*, Dumeril and Bibron. (Described *J. A. S.* XXI, 754). Inhabits Burma, and also the mountainous parts of Ceylon. Hind-toe reaching to the ear.

3. *C. ROUXI* (?), Dumeril and Bibron. Three adult specimens and another half-grown forwarded by Dr. Kelaart from Newera Elia, in Ceylon, accord fully with the description as regards structure;

but the colouring is remarkable, and different again from that of Mr. Jerdon's supposed *C. ROUXI* of S. India. Pit before the shoulder more developed than in *C. MYSTACEUS*, and partially black. Hind-toe reaching to the eye. A row of 3 or 4 raised spines above the tympanum; and nuchal crest moderate and gradually diminishing to the tail. The latter is tumid at base, and soon attenuates rather suddenly, the tumid portion exhibiting a median ridge of very broad keeled scales. Caudal scales towards the base of tail much larger than those of the body. Throat scales very broad and flat, with a median row of narrow compressed scales imparting the appearance of a small *fanon* or dewlap. A half-grown specimen (in spirit) is blue, with the tail reddish-brown to near its base, and marked with an irregular double series of *ocelli* which are white, having a black border. A few similar *ocelli* are seen bordering the low spinal crest. There is a black mark between the eye and the ear, and another below the eye; and a tinge of ruddy on the throat, about the tympanum, and on the occipital and tympanic spines. Adults (in spirit) have the body and limbs blue, the tumid base of tail green, and the rest of the tail dull red-brown, with *ocelli* less bright than in the young. Borders of lips black, continued as a broad black band (more or less variegated with ruddy-white) to the shoulder-pit. Throat whitish tinged with ruddy and strongly contrasting, as also a white band from the tympanum continued over and passing the shoulder-pit. In some, the shoulder-pit is also posteriorly margined with a white mark; and raising the fore-leg, two or three additional white stripes are seen, oblique and successively more inclining to the horizontal. The limbs are also banded with white; but these markings are often indistinct or obsolete. Tumid base of tail bright orange underneath in some specimens. *C. ROUXI* is described from Burma; but as we possess the preceding species both from Burma and the mountains of Ceylon, it is the less improbable that the present may have the same habitat.

4. *C. GIGAS*, nobis. (Supposed *C. OPHIOMACHUS*, *J. A. S.* XI, 870). Resembles *C. VERSICOLOR*, except in being much larger, having no trace of gular *fanon*, and a double nuchal crest of spine-like scales, $\frac{1}{2}$ in. long in the specimen under examination. Dorsal crest also proportionally more developed than in *C. VERSICOLOR*,

and terminating abruptly over base of tail. Length of head and body $5\frac{1}{4}$ in. Of tail——? Of hind-limb $3\frac{1}{4}$ in. Colour apparently uniform without markings, but the specimen is much blanched. Hab.——?

5. *C. VERSICOLOR*, Daudin. The most common and generally diffused species, inhabiting all India and Ceylon, from the base of the Himalaya southward, and (according to Mr. Gray) also China and Afghanistan (vide, however, remarks on *C. EMMA*). It is the only species we have in Lower Bengal, where it is excessively abundant, particularly in gardens. Sir A. Burnes sent a specimen from Sindh; and we have also one from Rangoon. In the last, however, the scales are somewhat smaller than in Indian specimens, and the two detached spines on the tympanic ridge are remarkably minute; but there is no other difference. Ceylon specimens, on the other hand, appear commonly to attain a greater size, with somewhat larger scales, the nuchal and dorsal crests and also the gular *fanon* being rather more developed (and they are then the supposed *C. Rouxi* *apud nos* of *J. A. S.* XXI, 354); but smaller and younger specimens from Ceylon are quite undistinguishable from Bengal examples; and it may even be that the latter sometimes attain the size and general development of the Ceylon reptile.* In S. India, again, the changes of colouring (as described by Mr. Jerdon) differ from those of *C. VERSICOLOR* of Bengal, and are perhaps the same as in the Ceylon animal. Here the colours are changeable, but no yellow is ever seen; and in the months of May and June, the males chiefly are often observed with the head and anterior third of the body, inclusive also of the fore-limbs, tolerably bright red, a large black patch before the shoulder, and all the rest plain greenish-brown. They are often altogether of the latter hue without markings; or the markings come out more or less strongly. The reptile is then commonly brown, lighter or darker, with a series of transverse dusky bands, broken on either side by a longitudinal whitish band which is evanescent, appearing and disappearing and sometimes shewing very conspicuously. A dusky streak through the eye, and

* Some *living* examples sent to me from Galle by Dr. Kelaart are quite undistinguishable from living Bengal specimens.

three others radiating below and two above it. Three or four oblique streaks on each side of the throat; and others on the limbs. Females are smaller and darker, generally of the hue of the ground on which they lie.

6. *C. VIRIDIS*, Gray. Nuchal crest extremely slight; and no decided spines above the tympanum, but three raised angular scales placed not on a ridge, but disposed triangularly and separated apart. In some specimens, probably the females, the latter are scarcely noticeable. There is also a row of five flattened scales from below the eye to above the tympanum. Two longest hind-toes of subequal length and reaching only to the ear. Body scales acutely pointed, especially those of the lower parts. Colours green or brown, mottled with whitish and with dark brown; lips black. From S. India.

7. *C. OPHIOMACHUS*, (Merrem). Tympanic ridge with several short and two longer spines. Longest hind-toe reaching to front of eye. Tail extremely long, its terminal three-fourths commonly whitish. General colour green, paler below; with some irregular white transverse bands on the body in adults. Stripe through the eye red; and nuchal crest and throat the same in the breeding livery of the males. One Ceylon example (in spirit) is remarkable for having a longitudinal white lateral band, continued from the shoulder to the tail upon which it becomes broken and lost. Identical from S. India, Ceylon, and the Nicobar Islands.

8. *C. PLATYCEPS*, nobis, *J. A. S.* XXI, 354. Hab. Khásia hills.

9. *C. TRICARINATUS*, nobis. Founded on a young specimen of a well marked species, affined by the flat form of the head to the last, but particularly distinguished by having three low crests or keels along the nape and shoulders. An oblique row of six large triangular scales over each tympanum, but no spines (perhaps on account of youth). Longest hind-toe reaching to tip of muzzle. Colour (in spirit) blue above, white beneath. From near Darjiling, where procured by Capt. Sherwill.

ASPRIS, nobis, *n. g. (Scincidæ)*. Affined to *TROPIDOPHORUS*, Dumeril and Bibron, but differs much in the arrangement of the shields upon the head, and the face anterior to the eyes is compressed and narrow, with subacute muzzle. Tongue very slightly notched. Teeth extremely minute. Frontal shield elongate-pentagonal.

gular, attenuating much posteriorly : fronto-parietals triangular and contiguous ; parietals large, subovate ; interparietal smaller, elongate and obtusely pentangular ; superciliaries five in number, broad, the two series separated apart by the narrow hinder part of the elongated frontal shield. Scales of the back and upper part of tail rhombic, strongly carinate, the keels running in parallel ridges ; of the belly roundish, smooth. Præ-anal scales 2, large, triangular. Toes 5—5, simple, slender.

A. BERDMOREI, nobis, *n. s.* Colour dusky-brown or blackish, the throat and belly ruddy-white, with some cross-bands of the same upon the neck and body, broader and more distinct on the former, and white specks on the lips, chin, and on the under and lateral surface of the tail. Eight distinct rows of keeled scales along the back. Length of specimen $4\frac{5}{8}$ in., of which the tail is $2\frac{3}{8}$ in., and head $\frac{9}{16}$ in. ; fore-limbs $\frac{9}{16}$ in. ; hind-limbs $1\frac{3}{8}$ in. Hab. Mergui, where procured by Capt. Berdmore.

MOCOA FORMOSA, nobis, *n. s.* Length of one 7 in., of which the tail measures half. Scales hexagonal, in six dorsal series. Præ-anal scales similar to the abdominal. Form robust. Frontal shield elongate-pentagonal, broadest to the front, and rounded posteriorly. Inter-nasal and fronto-nasals lozenge-shaped, or somewhat fan-shaped, broader than long. Fronto-parietals distinct, but unsymmetrically divided. Colour olive-green, with black lateral and pale superlateral bands as usual, the former much speckled with greenish-white, and the latter shewing a series of black spots. Between the pale superlateral streaks are five narrow black lines along the nape and body, variegated with angular greenish-white spots. A few such spots appear also on the upper surface of the tail, caused by a scale variegated with black and greenish-white here and there placed. Limbs minutely pencilled with black, and spots or streaks of the same upon the head. Under-parts greenish-plumbeous throughout. This large specimen was procured at Mirzapore by the late Major Wroughton ; and others, from Wuzerabad, presented by L. C. Stewart, Esq. now of H. M. 61st Regt., are smaller and less marked with black, which does not form continuous lines along the back, but variegated scales (black, with pale

medial portion,) are throughout scattered, and there are some black markings on the head.

M. SIKIMMENSIS, nobis, *n. s.* A small species, about 4 in. long, the tail varying in length in different individuals. In one the head and body measure $1\frac{5}{8}$ in., the tail $2\frac{3}{8}$ in.; in another the head and body measure $1\frac{3}{4}$ in., the tail but 2 in. This difference is probably sexual, the former proportions denoting the male, and the latter the female.* Closely affined to the preceding species, but much smaller, flatter, and more lustrous, with proportionally much more slender toes. Colour of the upper parts nacreous olive-green, with three irregular black lines or rows of specks along the back, not always very conspicuous. A broad black lateral band, becoming obsolete along the sides of the tail, is margined with a glistening pale greenish stripe above, and variegated with spots of the same along its lower half and on the outside of the limbs. Under-parts greenish-white, except the tail and below the limbs where the colour is rufous-white. Some have a few dark spots on the throat. HAB. Sikim, where procured by Capt. W. S. Sherwill.

PLESTICODON QUADRILINEATUM, nobis, *n. s.* Proportions of *TILIQUA*; the head small, but its plates almost exactly as in *PL. LATICEPS* of N. America. Colour blackish above, pearly white below; two dorsal greenish-white streaks, commencing at the nostrils and gradually disappearing at about the middle of the tail; these streaks being exterior of the two alternating series of medial and hexagonal dorsal scales: also a lateral pale streak from fore to hind limb, which is more or less indicated on the neck and base of tail, close upon the whitish hue of the under-parts. Length $7\frac{1}{2}$ in., of which the tail measures $4\frac{3}{4}$ in.; of hind-limb $1\frac{1}{2}$ in. China (Hong Kong?). J. C. Bowring, Esq.

EUPREPES MACULARIUS, nobis, *n. s.* Affined to *EU. CYANOASTER*, (Lesson, v. *Eu. sechellensis*, D. & B.) Like *TILIQUA RUFESCENS*, (Shaw), but the scales of the upper-parts 5-7 carinate, and colour bronzed olive-green above, pale below; the hinder half of back and base of tail above marked with irregular reddish-brown spots, and a broad reddish-brown lateral streak continued from the ear to the middle of the tail, marked throughout with white, which tends to

* The same variation occurs in the species of *RIOPA*, Gray.

form continuous lines posteriorly. Terminal half of tail whitish. Arms and hind-limbs speckled with white posteriorly. Length of specimen $5\frac{1}{4}$ in., of which the tail measures $3\frac{1}{2}$ in. HAB. Rungpore?

Lissonota, nobis, *n. g.* Form of EUPREPES, but more slender, covered with very smooth minute uncarinated scales. Head short, flat, subtriangular as viewed from above, broader than high, with obtusely pointed muzzle. Tympanum distinct, roundish. Lower eyelid scaly. Palatal incision slight, placed far back. Tongue scarcely notched. Teeth very minute. Frontal shield pentagonal, subtriangular, broad to the front, and elongated to an obtuse point posteriorly; the supra-orbitals nearly meeting across. Inter-nasal hexangular, somewhat fan-shaped. Fronti-nasals small. Frontiparietals two, contiguous. Inter-parietal squarish or diamond-shaped. Limbs well developed. Toes 5-5, the palms and the heels (or exterior portion of soles) granular. Infra-caudal scales larger than those of the body; and two large triangular præ-anal scales.

L. MACULATA,* nobis, *n. s.* Colour (in spirit) greyish olive-green, with a double row of irregular dark spots along the nape and back, and a median line of the same along the tail. On each side a dark band is continued throughout, commencing at the nostrils; and beneath this is a narrow pale streak, then a narrow dark one, and finally a few dark spots on the sides of the throat and belly. Upper surface of the limbs variegated throughout. Lower-parts albescent-greenish. Length of specimen,—head and body $1\frac{7}{8}$ in., and tail probably about the same, but the tip is wanting. Fore-limbs $\frac{5}{8}$ in.; hind limbs $1\frac{5}{8}$ in.: distance apart of fore and hind limbs 1 in. From Asám; Col. Jenkins.

OPHIOPS JERDONI, nobis, *n. s.* A typical species, dark bronze above, black-spotted, with two obscure broad dorsal streaks; below white throughout. Length of head and body $1\frac{1}{2}$ in.; of tail $2\frac{1}{4}$ in.; of hind-limb, to extremity of longest toe, $\frac{3}{4}$ in. Femoral pores 7 or 8. Shields of head plaited longitudinally. "Procured at Mhow, in pasture land." T. C. Jerdon, Esq.†

* This species would seem affined to PLESTIODON SINENSIS, Gray.

† Since Mr. Jerdon's paper on the reptiles of S. India was ready for publication. With reference to that paper, p. 468 *ante*, he desires me to state that "the only specimen of HOMONOTA FASCIATA was taken from the mouth of a snake, in grassy land, near Jaulnah."

SPHENOCEPHALUS, nobis, n. g. A *Sepsoid* form affined to **SPHENOPS**, Wagler, but with more slender and elongated shape, and the limbs placed more distantly apart; the anterior minute and fitting into a groove, the posterior as large as in **SPHENOPS**, and each having but three toes, of which the innermost and next are subequal and the outer much shorter.* Form slender, $\frac{2}{3}$ cylindrical, quite flat and laterally angulated beneath as far as the vent.: the body and tail covered with small, smooth, lustrous, hexagonal scales, with a median row of broader scales along the under surface of the tail. Head much as in **SPHENOPS**, but the muzzle more pointed; the upper lip covering the mouth. Tongue broad, triangular, its cleft scarcely perceptible; the incision of the palate small. Teeth very minute. Eyes minute, with semi-transparent lower lid. No external trace of ear. Nostrils terminal, placed in the anterior margin of the nasals, contiguous to the front of each inter-nasal and the rostral; rostral equilaterally triangular; supra-nasal broad, heptangular, with apex to the front; fronti-nasals subtriangular, a little elongated; frontal obtusely subtriangular; parietal inequilaterally pentangular, with obtuse posterior base, single and as large as the frontal. A large subquadrilateral plate under the eye, and three small transversely narrow plates in front of it, and posterior to the nasal plate. A large diamond plate on centre of chin, emarginated anteriorly to admit a small roundish plate which is bordered by the anterior laterals. Tail shorter than the body, and sub-cylindrical, flattened below.

SPH. TRIDACTYLUS, nobis, n. s. Very pale brown, a little deeper on the upper-parts. The largest of six specimens, measures 6 in. in total length, of which the tail is 2 in., and distance apart of the fore and hind limbs $\frac{1}{2}$ in. Length of fore-limb $\frac{1}{8}$ in.; of hind $\frac{2}{18}$ in. From Afghanistan. Presented by Dr. Allan Webb.

The habit of this curious reptile is indicated by its structure. It is evidently a burrower, probably into loose sandy soil, where it would work its way with its wedge-like muzzle, deriving considerable *appuis* from its hind-limbs; the minute fore-legs remaining

* It is still more nearly affined to the Australian form **RONIA** of Gray, figured in the Appendix to Grey's Journal; but this has still more rudimentary limbs, the anterior merely indicated externally, and the posterior shewing but two digits.

generally close within the grooves into which they fit; the head meanwhile being raised, and the long body arched,—an attitude which most of the specimens assumed when immersed in spirit.

The following is a remarkable limbless lizard from Rangoon, obtained by purchase.

OPHISEPS, nobis, *n. g.* Form anguine, of nearly uniform bulk throughout, tapering suddenly at the extremity of the tail; no exterior trace of limbs; and the vent placed in the middle of the entire length; the body above, and tail above and below, covered with parallel ranges of quadrilateral keeled scales, the throat and belly with hexagonal smooth scales, and the tapering extremity of the tail with imbricated and rounded scales. A groove on each side from shoulder to vent. Tongue obtusely forked: no palatal teeth; but a single row of small maxillary teeth; the triangular incision of the palate large. Eyes rather small, lacertine; the lids scaly. Tympanum small. Nostrils small, lateral. Head conical, somewhat compressed in front; the cleft of the mouth extending to beyond the eye. Rostral plate small, broad, triangular; it and the nasals and anterior labials surmounted by numerous small plates and larger representatives respectively of a posterior nasal and united fronto-nasals. Frontal shield large, heptagonal with posterior base; and the parietal inequilaterally pentangular, with anterior base. Frontoparietals quadrangular. The streaks of the chin are sub-quadrangular and placed obliquely. Along the median ridge of the back the parallel ranges of scales alternate, but not upon the tail.

O. TESSELLATUS, nobis, *n. s.* Length of specimen $12\frac{1}{2}$ in., of which the tail measures $6\frac{1}{2}$ in. Colour pale dingy buff-yellow, paler below, with numerous plumbeous spots on the anterior half of the body above, composed of scales of that colour, some detached, others placed contiguously to form transverse bands more or less imperfect; all the scales being highly lustrous. There are 14 parallel ranges of them above, from lateral groove to groove, and 8 such ranges below. From Rangoon.

(To be continued.)

*Notes on the Ruins at Mahábálipuram on the Coromandel Coast.—**By C. GUBBINS, Esq. B. C. S.*

The temples of Mahábálipoor or Mavellipuram are situated in Lat. $12^{\circ} 36' 57''$ North, and Long. $80^{\circ} 14' 1''$ East; nearly thirty-five miles south of Madras, and about five north of the little town of Sadras.

They are built and excavated from a low rocky ridge, that rising isolated from the plain, runs slanting towards the shore for about a mile and a half. The highest part, towards the north, is little more than 120 feet in elevation; and perhaps a mile from the sea, into which the southern extremity runs. It appears to have some small spurs, which may be seen cropping out at various points on the beach.

It is chiefly* of a binary granite, that conveys to a casual observer, the idea of having been recently half-wetted by a driving pelt of rain; and although extremely hard, splits readily into masses of various, but considerable size. I saw a block from forty to fifty feet in length, and twenty-five to thirty feet in width, that had been divided with an apparently† plane surface by a single blast of gun-powder. The hewers of the caves, however, do not seem to have enjoyed the assistance of this powerful agent: their method was to trace out on the surface of the rock, the line in which they required a separation, along which small holes were made with the chisel, and wedges introduced with sufficient force to compel cleavage. It would however be difficult at the present day, to determine whether these wedges were of wood, well dried before insertion, and subsequently swelled by the application of water; or of metal driven in by repeated blows, as appears to have been the custom in ancient Egypt.

The rock yields to the weather by conchoidal peelings, which gives to the group the general appearance of a mass of gigantic boulders, or a confused assemblage of ruined domes. Considering its hard-

* As far as I could perceive, it was entirely so: but I had not leisure for an examination sufficiently minute, to authorize my speaking positively.

† I say "*apparently*," because with reference to the known conchoidal fracture of the rock, it is probable that when closely examined, the surface would be found somewhat curved.

ness, it seems to be peculiarly affected by the sea air. This was remarked by Mr. Chambers in 1772 and 1776. "All these figures are doubtless much less distinct, than they were at first; for on comparing these, and the rest of the sculptures that are exposed to the sea air, with others at the same place whose situation has afforded them protection from it, the difference is striking; the former being every where much defaced, while the others are fresh, as if recently finished;" and it is necessary to bear in mind this characteristic, when discussing the antiquity either positive or comparative, of any portion of these edifices.

The greater part of these temples are excavations, after the fashion of Ellora and Elephanta; superior in taste and symmetry, though far inferior in dimensions, to the first named. The most perfect and beautiful is in a narrow ravine, towards the northern part of the range, and facing to the West; whereby it has been well protected from the effects of the sea air. Although small in its dimensions, it is remarkable for its artistic merit: the columns in particular are slender and most graceful; the pedestals couchant tigers facing outwards; the capitals elegant and well proportioned, though fashioned in a style unknown among the orders of Grecian architecture. Mr. Chambers remarks on its sculpture that "the figures of idols in high relief on its walls are very well finished, and perfectly fresh." Another appears to have been dedicated to Siva, who is represented, in the middle compartment, of large stature and with four arms. A small figure of Brahmá is on his right; Siva with his consort Párvatí on the left; and his left foot rests on a bull couchant. At one end of the temple, is a gigantic figure of Vishnoo sleeping on a Cobra-di-capello, with several heads so disposed as to form a canopy above the god. At the opposite end appears Sivání, in the character of Doorga, with eight arms, mounted on a lion; opposed to her is a gigantic figure with a human body and buffalo's head, much resembling that which is elsewhere called the Yum rájá; between them is a human figure suspended head downwards, apparently the object of their dispute: and the monster brandishes a club, while the goddess is armed with various weapons and accompanied by some dwarf attendants.

Mr. Goldingham remarks, "The figure and action of the goddess

are executed in a spirited and masterly style :” and Lieut. Newbold observes that “the best executed figure of the king of the beasts, is that on which the goddess Doorga is seen, mounted in the sculptured cave near the summit of the hill.”

Not far off, a large polished slab about ten feet in length, with the figure of a couchant lion at the southern end, is shown as the bed of the Dharma rájá : which may probably be understood as the “*Sit de justice*,” or throne, whence some prince of that name was wont to dispense justice to his people.

Of the other caves some were considerably larger, and had more the appearance of being dedicated to Vishnoo : all facing the East. But the striking point in which the whole series resembles that of Ellora is their unfinished state. Mr. James Fergusson remarks of them in a paper read to the R. A. Society in 1843.

“One of the most singular characteristics of this series of caves is, that they are all of one age, and probably the work of one prince, who has carried on the works simultaneously : but from some cause or other has been unable to complete even one of them. Had one been finished, or had there been any gradation of style or workmanship, some chronological arrangement might easily have been effected : but nothing of the kind exists.”

Another still more remarkable point of similarity is the repetition of the sculptured group, representing a skeleton figure in a suppliant attitude before a personage appearing to possess authority. Mr. Goldingham describes the group at Mahábálipoor as follows :

“Near this structure, the surface of the rock about ninety feet in extent, and thirty in height, is covered with figures in bas relief. A gigantic figure of the god Khrishna is the most conspicuous ; with his favourite Arjoon, in the Hindoo attitude of prayer ; but so devoid of flesh, as to present more the appearance of a skeleton than of a living person ; below is a venerable figure said to be the father of Arjoon ; both figures proving the sculptor possessed no inconsiderable skill.”

It does not appear whether Mr. Goldingham had any authority for this interpretation, beyond that of the attendant Brahmins, who are always ready to affix the names of some Hindoo god or hero to every ancient sculpture : but I could not perceive in the standing

figure, the usual attributes of Khrishna; neither can I recal any tale or legend, that represents Arjoon and his father Pandu as suppliants to that divinity, in a state of starvation.

When I visited the caves of Ellora in 1841, Lieut. Howarth, then engaged in making drawings of the bas-reliefs, informed me that the group was generally considered to pourtray a miser, holding a bag of money, while his wife and son, reduced to skeletons, are vainly supplicating for food; but on minute inspection, I was not satisfied with this interpretation, and find my notes on the subject as follows.

What is assumed to be a purse tied round the waist of the miser, has not the appearance of a sack containing money; but might rather represent a girdle, drawn tight round the body to ease the sensation of hunger, as is the custom with most semi-civilised nations: neither can it be a bag of coins that he holds in his hand, because the thick part is above the hand, and terminates in a point at top; but it *might* be an instrument for cutting the rock, which he is holding out to the half-starved figures at his feet. The little fat cherub may as well be supposed to be bringing him a bag of treasure, as to be taking it away; and then the entire group may be imagined to pourtray the cause and mode of construction of these caves, as a work undertaken by some prince or wealthy chief, during a time of famine, to relieve the wants of his starving people. Admitting this supposition, we shall have no difficulty in accounting for a continuation of the bas-relief which appears appended, not only to this group, but also to a similar one in less perfect preservation in another cave: and we shall recognize Ganesh, at the head of a row of females, each carrying a child in her arms, as exhibiting the eventual results of the judicious disbursement.

This interpretation is merely a conjecture; but it seems to derive great support from the existence of the same group on the rocks of Mahábálipuram. We can hardly imagine sculptors at such very different parts of India, happening to invent precisely the same story: though it might easily occur that both had to relate to posterity the same events. It is no very great stretch of credulity, to suppose that in both places, the works were undertaken by some prince, to employ his furnishing subjects during a time of great scarcity; and to furnish them with food without supporting them

in slothful idleness. This is exactly what was done by Sir Charles Metcalfe, in our Upper Provinces during the famine of 1837-8, and it does not seem impossible that similar events might suggest similar remedies, to beneficent and intelligent minds, even at an interval of many centuries. Nor are we without some indications that such actually *has* been the case: for Mr. Taylor, quoting from the Mackenzie papers, says:

“It is said that in the Kali Yuga, Singhama Nada, a Zemindar of the Vellugotivara race, ruled at Mallapoor (Mavellipuram); in that time, during a famine, many artificers resorted hither, and wrought on the mountain a variety of works during three years.”

This theory will explain how in both cases, (Ellora and Mahábálipuram,) a number of works were commenced simultaneously, in order to employ at once a large number of workmen: and how they came to be left unfinished; the people naturally returning to their ordinary occupations, when the pressure of famine was removed.

I must not omit to mention another tradition, which attributes the construction of these works to a body of Northern artificers, who fled from the tyranny of their own or some conquering prince, and were suddenly recalled to their homes, by proffered favours and concessions on his part; nor the conjecture of Mr. James Fergusson, who, discrediting this story, accepts Singhama Nayadu as the prince to whom the excavations are due: and tracing him to his death in battle, while besieging the fort of Jalli Palli in the thirteenth century, conceives this event to be a more probable cause of the sudden interruption of the works, “as they were not part of the religion of the people, nor was it likely that his successor would continue the follies of his parent.” Either of these suppositions would certainly account for the non-completion of the works at Mahábálipoor: but we should then have to seek out some analogous cause for the same circumstance at Ellora: and the remarkable repetition of the significant group of sculpture would remain totally unexplained.

There are a variety of other sculptures both of beasts and human beings; and often presenting a mixture of both. The most conspicuous is the king snake, with the head and body of a man, terminating in extensive serpentine convolutions, often winding round other groups. They are nearly all on the eastern face of the rock: and

mostly close to the principal caves, which are in the northern half of the range. In the same vicinity is a somewhat remarkable monolith; a mass of living rock left isolated, and artificially fashioned outside, as well as inside. It appears to be above twenty-five feet in height, the same in length and about half in breadth. It has a long roof curved like a Gothic pointed arch, and gabled at each end.

The walls are of great thickness, so that the interior cell is small: it contains a lingam, and among the sculptures on its walls, appears the figure of Ganesh in small dimensions. Its door faces the West: and close to it the Brahmins are quarrying the rock, to repair and beautify the interior of the brick pagoda; the only one in which the ceremonials of worship are performed, at the present day.

At the extreme south of the ridge, and separated from it by a small level space, along which runs the lower road from Madras to Cuddalore, stand a group of monoliths, seven in number, surrounded by a grove of cocoanut trees.* Five of them are pagodas; of which the most southern (measured by Mr. Goldingham forty feet in height) resembles in general outline a Mussulman mausoleum. Another twenty-five feet in height, and perhaps fifty in length, has a long Gothic roof as previously described, and is ornamented on the outside: the other three are more like modern pagodas. The two remaining rocks are fashioned to imitate an elephant and a lion, in colossal proportions. All these monoliths, though close to the sea beach, and perfectly exposed, are comparatively fresh in their outline, and exhibit very little signs of corrosion. They are composed of this same binary granite, and I think we may thence conclude their comparative antiquity not to be very great.

There still remain two† temples, differing from the former in being *built*, instead of hewn in the solid rock. The first, already alluded to, stands near the village on the level ground not far from the principal caves, and is of brick, plastered and coloured in the modern style. It is of considerable size, and is still used for purposes of worship, and for the accommodation of Hindu travellers. The brahmins enjoy some revenues attached to the building, and are busily engaged ornamenting and improving it: all which circum-

* Or else—palmyras: my recollection on this point is indistinct.

† I have been told of a third farther north, but did not see it.

stances,* combined with its perfectly recent form and appearance, are conclusive in my mind against any claims to great antiquity that may be advanced on its behalf.

The last remaining is that which has attracted most attention from travellers: it is built of large masses of hewn granite, on one of the granite rocks already mentioned, as protruding at intervals along the sea shore. It is nearly opposite the highest part of the ridge, and has apparently been built *en rapport* with some part of the excavated hill, from which it is a mile distant in an easterly direction. Its dimensions are small: speaking from memory, I should say, under thirty feet square: but its curiously ornamented conical roof rises to an elevation of nearly fifty feet: It is surrounded on three sides, by a granite screen of ten or twelve feet high, and about five feet distant from the body of the temple: on the fourth side (the WEST,) stands a miniature of the temple, opening towards the WEST, and bearing every appearance of having originally been its principal† entrance. The walls and roof of a connecting passage still exist, but all access by this route is now barred, by a slab of black basaltic rock, fixed in the eastern wall of the portico, opposite its entrance. A similar, rather larger slab occupies a corresponding place on the inner surface of the western wall of‡ the temple; and on both are images of Śiva, Parvatee and their child. I was unable to discover whether the space intervening between these two slabs is vacant, or has been filled up with masonry: but it is my very strong impression, that they and their immediately surrounding blocks of stone are long subsequent in date to the rest of the building, and have been inserted in order to mark the ancient entry. As matters at present stand, it is impossible to assign any reason for the existence of a blind chamber, or

* It will generally be found that religious edifices, still possessing endowments, belong to the later phases of Hinduism: the more ancient having been lost, in the various political and religious contests.

† As is constantly seen at present to the EAST of Hindu temples.

‡ The centre is occupied by a large lingum which, from its dark colour, I conclude to be of this basaltic rock, which must have been brought from a considerable distance. The chaityas terminating the roofs of both temples and prophyllum are the same. Every other part is granite.

other mass of building, between two temples of Siva placed *dos á dos* : and there are only two suppositions that will account for the erection of these two buildings, of obviously the same date, with a covered passage of connection. Either the smaller was a sanctuary, to be entered only from the larger ; as appears to have been the case in some of the Arian temples still extant in Cashmere : or else it must have been a portico, through which admission was obtained to the larger or real temple. The first hypothesis is contradicted by the existence of the western entry to the smaller edifice, which is certainly contemporaneous with its construction : and also by the fact that the stone screen, that so carefully encircles the larger building, *ceases* on arriving opposite the smaller. We are therefore thrown back upon the second ;* which is supported not only by these circumstances, but also by the extreme simplicity of the present door to the larger temple ; a mere plain opening in the wall. I may also mention that while the smaller building (and through it, were the passage still open, the larger one only) is approached from the west with ease and on a level ; the only access to the simple opening in the eastern screen now serving as an entry is over a low, but steep and rugged rock washed by the breakers below. This rock has certainly the appearance, both here and elsewhere, of having been partly cut into rude steps, and partly perforated as if to receive some superstructure that has since disappeared. One solitary column still raises its head above the waves, and is commonly considered to have been a Stambha, to support lamps : it should however be remarked that there is no vestige of any mode of ascent, to place them ; neither of niches wherein they might be placed. The top is formed into a kind of peg, as if to receive some capping stone, and I have myself little doubt, that it is the sole relic of some terrace or arcade, once extending in this direction : I also traced out faintly, the platforms of two collateral buildings ; one on each side of that now standing : and among the débris of the southernmost, I discovered several images of the kneeling bull generally placed opposite a lingam, so corroded as to be only recognizable on careful

* The idea of the original entrance having been from the West, will appear less strange, if it be remembered, that the entrance and portico of the Kylas at Ellora actually are from that quarter.

examination. A similar image, in a better state of preservation, is to be seen within the granite screen, on one side of the portico ; and on the other, in a closet or small chamber of comparatively recent construction, is a large recumbent statue of Vishnoo, with the ordinary Ses-naga below and above him.

On the shore close by, are several rudely sculptured rocks : one representing a monster with human arms and the head of an ox or buffalo, commonly called the Yam rájá. They have suffered greatly from the action of the sea air, as has also every part of the adjacent temple, except its chaityas of basalt. In this respect, there is a great difference between its appearance and that of the caves, or even of the group of monoliths placed in a situation no less exposed : and after close examination of all surrounding circumstances, I am unable to resist the conclusion, that this temple is by many degrees the most ancient of the remains at Mahábálipoor : in fact that it is one of the most ancient in India. I am aware that Mr. James Fergusson considers, "that its age does not differ materially from the rest ;" and it is with the greatest diffidence that I venture to express an opinion differing from that entertained by so competent an authority : but Mr. Fergusson was specially engaged in the examination of the rock-cut temples ; remarking the similarities and the differences existing between them and similar works in other parts of India ; so that probably he had little leisure for this structure ; to which I, on the contrary, devoted much attention. Besides, if I remember right, he decided these caves to be more modern than those of Ellora : at the same time he considered the celebrated Kylas of that place to have been copied from some earlier edifice of Southern India : and looking to the very great general similarity of style, I am certainly inclined to refer this shore temple of Mahábálipoor, to the age of those earlier structures, although the precise model of the Kylas may not be found here, but at Shellumbrum or Tanjore. This would give a considerable difference of date ; and the supposition is borne out by the assurances of the Brahmins who attended Mr. Goldingham, that their ancient books "contained no account of any of the structures here described, except the *stone pagoda near the sea*, and the pagodas of brick near the village." The obvious error of the last statement certainly detracts from the value

to be assigned to the former; but it should not be forgotten, that these brick pagodas were in their own possession, and in present use; so that they had a motive for assigning to *them* a fabulous degree of antiquity: while they had no such inducement for making an untrue distinction between the caves and the other remains, all equally abandoned and valueless to themselves.

But whatever the age either actual or relative of the various temples of Mahábalipoor, it seems certain, that at some distant period, the place was one of no small importance. The ground immediately inland from the shore temple has obviously been built over, to a considerable extent. The extremely well cemented foundations of ancient walls are now dug out, as required for building materials, by the inhabitants of the neighbouring village; or for the improvement of the brick pagoda. I examined a large mass of concrete, with bricks on the lower surface, and found it extremely solid, and in excellent preservation. It consisted of sharp broken fragments of the granite of the place, mixed with unburned shells: the excellent mortar in which they were embedded being probably these same sea shells burned. The bricks were of the large size usual in all old Hindu structures: but not uniform in their shape. Those I measured varied from eleven to thirteen inches in length, from seven to seven and half in breadth and were pretty regularly two inches* thick; so well laid in the finest mortar, that five of them *in situ* barely measured eleven inches. Most of the houses in the village are built of these old bricks; but the ruins are so completely covered with a deposit of soil, and drift sand, that numerous excavations would be necessary, to afford even the vaguest idea of their extent. It is

* I append a memorandum of the dimensions of old bricks I have collected within the limits of the Mahabharut, and an average of a much larger number of

| | | | | |
|-----------------|--------------|-------------|-----------|--|
| Paneeput fort, | 15 inch long | 9 inch wide | 2½ thick, | } specimens from the neighbourhood, gives 15½ by 8½ by 2½. |
| Burnawa ditto, | 17 " | 9 " | 2½ " | |
| Hustinapoor do. | 14 " | 9 " | 2½ " | |
| Average, | 15½ " | 9 " | 2½ " | |

It will be observed that here again the most variable dimension is the length: and the average of these north country bricks will be found to be exactly of the same proportions as the average of those at Mahabalipoor, the length 15½ and breadth 9, being pretty nearly to the length 12 and breadth 7½ inches as the thickness 2½ is to the thickness 2.

however certain, that there must have been a wealthy, and therefore in all probability a numerous, population, where dwelling-houses were built of burned bricks, cemented with lime mortar; and where masons were sufficiently acquainted with the mysteries of their art, to use foundations of concrete, formed of the most durable materials, and on the most approved principles. It must be remembered that in classical days, the extremity of the peninsula was the entrepôt of commerce, between the east and the west. Gibbon says, "Every year about the summer solstice, a fleet of a hundred and twenty vessels sailed from Myas Hormas, a port of Egypt on the Red Sea. The coast of Malabar or the island of Ceylon was the usual term of their navigation, and it was in those markets, that the merchants from the more remote parts of Asia expected their arrival. This fleet traversed the ocean in about forty days, by the periodical assistance of the monsoons." Whence we gather that the European fleets proceeded to India, with the commencement of the S. W. monsoon; and remained there until the beginning of the N. Easterly; which is consonant with all we know of the habits of the seamen of antiquity. But, at that time of year, the ports of the Malabar coast would have been extremely unsafe; besides that no large city is known to have flourished at that epoch, any where near Ceylon, with access from that quarter. It is therefore far more probable, that the laden ships, favoured by the strong southerly current along the shore, passed *by* the Malabar coast, and *by* the island of Ceylon, to find harbour on the Coromandel coast, and await the change that would take them on their return voyage. I have the authority of a commander of approved skill, and well acquainted with these seas, for saying that there are no physical features to prohibit the idea, that Mavellipoor may have been one of these ports. He answers my enquiries: "There are no reefs off the Seven Pagodas; and the only danger in the vicinity, is a small reef nearly abreast of the collector's house at Tripalore, hence called the Tripalore reef, upon which one of the Company's vessels was wrecked some fifty years ago: but so near shore (half mile) as not to create any alarm at the present day," when its situation is perfectly ascertained. He adds, that even now ships passing along this coast generally make Sadras hills, to get into a good position for reaching more northern parts:

and that "there is no reason why the anchorage at the Seven Pagodas should not be as safe as Madras roads." Nor are there wanting indications of the place having formerly possessed far better anchorage than either Madras or Pondicherry could ever boast. Behind and south of the sculptured ridge for some distance inland, runs a salt-marsh, bearing every appearance of having once formed part of the estuary, which debouches about half-way between Sadras and the shore Pagoda. The soil is not at all like once firm ground, overflowed by the ocean, but rather the light pulpy character of silt, deposited by contending currents and streams in some nook, where their forces neutralised one another: an operation well known to be proceeding down to the present day in every quarter of the globe. A corresponding action, minor in degree because only due to rain and atmosphere, has most certainly taken place on the other side of the sculptured ridge: as is shown by the five or six feet of alluvial soil under which the ruins of the city are now buried: and we can with equal confidence assert, that foreigners were in the habit of visiting the place, as among the coins found in the vicinity, have been some of Rome, of China and other distant lands. No very great increase of depth in the estuary would (I believe, but I could not obtain accurate soundings) be necessary to admit vessels of the burthen then usual, and to afford them shelter equal to any on the coast. We have, therefore, I think, good reason to conclude, that in the olden days of which so few records have reached us, when the Chinese, the Phœnicians and the men of Tarsis united, as in the present day, the extreme east and west in bonds of amity by the mutual interchange of commodities, Mavellipoor or Mahábalipuram was a place of considerable commercial resort; and perhaps one of the chief ports of Southern India: very probably the Malearpha of Ptolemy. I am far from considering it equally certain that this was the capital city of the mythological hero Bali. We all know the tendency of the Brahmins to appropriate to their own sect every relic of antiquity they found in the countries over which they extended their influence: and beyond their own assertions, I do not know that we have the least evidence to the fact. "The name still surviving" will seem, to many, a strong argument: only it will not prove a sound one. The name of Mahábalipuram, "the city of the

great Bali," is only known at the present day to the Brahmins, and to Europeans who derived all their information either directly or indirectly from the Brahmins: and as there is no reason to believe that Sanscrit or Hindee was at any epoch the vernacular of that part of the country, we can hardly suppose that such a purely Sanscrit name ever was in common use thereabouts. Had the current name among the people been one that might possibly be considered a Tamul version of this significant epithet, we might certainly give some weight to the fact of such a name lingering about these remarkable antiquities: but on the contrary the common names of Mallapoor or Mavellipooram are* said to have no such meaning; and the similarity of sound would rather favour the idea that the Brahmins finding these remains with a name firmly annexed, adapted both to their own purposes; by fixing upon that one of their fabulous heroes, to whose title the foreign word could most easily be converted. Their own books do not afford much support to their present claims. The Mahābhārata describes the city as being

गङ्गायाः दक्षिणे भागे योजनानां शतद्वयं
पञ्चयोजनमात्रेण पूर्वान्ध्रैव पश्चिमे ।

"South of the Ganges 200 Yojanas, 5 Yojanas westward from the "eastern sea." It must be admitted that we do not know the exact equivalent of the Indian Yojana:† but it has generally been considered between nine and twelve miles, either of which would carry us far south of Ceylon! If therefore this quotation refers to any city on the present continent of India we must greatly reduce the length of the Yojana: say to five or even four miles which would about bring us to the latitude of Mavellipuram. But we must suppose that the proportion of two hundred to five was somewhat near the truth. and this would oblige us to look for Bali's capital not on the sea-shore but twenty miles inland, where to the best of my information no vestige of a city remains. If we assume the Yojana five miles

* I cannot speak positively nor of my own knowledge, not being sufficient of a Tamul scholar.

† A Pandit in this neighbourhood (Rohilcund) called it "four kos:" which would be from five to six English miles; as the local kos is seldom as much as one-half miles: and from a note to Chap. 22, of Fa Hian's pilgrimage it would seem that farther south the Yojana was only four miles.

instead of four, we shall certainly be able to satisfy both conditions pretty well in Combacorum, the Benares of the south, or in the ancient capital of the Pandyan kingdom, but either explanation is equally fatal to the claims of Mavellipuram.

It is true that it has been generally believed that the sea had encroached on this shore, and that many pagodas and buildings of this ancient city had been submerged even since the English settlements took place; and it may therefore be said that in all probability the site of this city was actually twenty miles from the sea in the days when the Mahābhārata was written. This idea is founded partly on the mariner's name of the Seven Pagodas, said to indicate the existence (in the early days of English intercourse with India) of seven Pagodas on the shore where now only one remains. But personal inspection at once shows the fallacy of this derivation of the name: the shore temples being far too low to be perceived at the distance that ships usually pass; more especially as they are backed by the cave-hewn ridge; and it is infinitely more probable that Mr. Chambers was correct in referring the appellation to the peculiar appearance presented by the rounded peaks of this ridge itself, especially as temples were vaguely known to exist in that neighbourhood without their situation being very accurately settled. He says, "The rock or rather hill of stone on which great part of these works are executed, is one of the principal marks for mariners as they approach the coast, and to them the place is known by the name of the Seven Pagodas: possibly because the summits of the rocks have presented them with that idea as they passed."

A far stronger evidence, however in the general opinion, was the tradition imparted by the Brahmins, and perhaps other inhabitants, to the earlier European visitors of the place. Mr. Chambers relates: "The natives of the place declared to the writer of this account, that the more aged people among them remembered to have seen the tops of several pagodas far out at sea; which being covered with copper (probably gilt) were particularly visible at sun rise, as their shining surface used *then* to reflect the sun's rays: but that now that effect was no longer produced, as the copper had become encrusted with mould and verdigris." Passing over as a minor objection that "at sun rise" the dark sides of the pagoda tops would

alone be visible from the shore, and that they would be best seen when illuminated by the *setting sun*, I would enquire, how is it possible that these slender ornaments should shine "far out" in the surf of the Coromandel coast, where not years or months, but a few hours of the stiff gales, with which it is so constantly visited, would be all-sufficient, not only to destroy the lustre of gilt copper, but to dislodge every stone between high and low water mark? It cannot be supposed that any sudden convulsion lowered the whole coast so that all at once the waves should roll within a few feet of the top, instead of below the foundations of the Pagodas: for such a convulsion must infallibly have shaken them to pieces, as well as levelled the existing temple, whose still uninjured pinnacles clearly disprove the hypothesis: therefore the subsidence, if ever it took place, must have been extremely gradual, like those of the Swedish and parts of the Italian coast: and recollecting the numerous years, (not to say centuries) that would be required to sink the forty or fifty feet which may reasonably be assumed to have been the height of the vanished structures, I only ask, is it credible that the waves should have spared them until only their tops (still bright and glittering notwithstanding the dashing spray!!!) remained above the surface.

I am sorry to be obliged thus to demolish the beautiful romance of the "Wave-covered metropolis of Bali;" but it is not the first of the aerial castles of Indian tradition, that has faded before the fuller light of modern European investigation. Like Bishop Heber, I find it difficult to understand how this particular spot should have sunk so much, if (as other writers aver) the rest of the Coromandel coast, both north and south, has rather risen within historical times. I have already mentioned the local features leading me to conclude, that this immediate vicinity has not suffered any encroachment from the ocean, but has rather gained from, and increased in elevation above it by, alluvial deposits from the higher* lands: and if a Brah-

* The brick foundations I have mentioned as being five or six feet *below* the present surface of the land, are very considerably more than that amount *above* high-water mark. I have not noticed Capt. Newbolt's argument in favour of the submersion of the city: viz. that Chinese and other coins are often washed ashore in storms; because the fact is equally explicable, by the supposition that this was a port frequented by foreign ships, of which some must necessarily, in the course of years, have been wrecked and sunk in the vicinity.

min legend is required, there happens to exist one in the Mackenzie papers (v. Mr. Taylor's 3rd report, section 9, page 65,) that comes as near to my view of the formation of the salt-marsh, as these tales generally do to the natural truths they often dimly chronicle.

“In early times one Mallesudu ruled here prosperously, but having refused charity to a Brahmin, he was changed into an alligator. A Rishi named Pundarica, going to pluck a lotus flower in the tank where the alligator lay, was seized by it, but had power to drag it out. The king thus obtained release and went to Swerga. The Rishi wished to present the lotus flower to Vishnoo, but the sea barred his way, and would not retreat; so he sat down to bale the sea out! While thus occupied, an ancient Brahmin came and asked for boiled rice, offering to do the Rishi's work, while the latter should go and cook it. By taking up a single handful of water the sea retreated a whole coss, and when the Rishi returned he found the Brahmin reposing in the manner in which statues of Vishnoo are sometimes represented. He now recognised the god, and a fine was built by him over the spot.” If this tale have any real foundation, it probably indicates, that after a period of abandonment this site was re-occupied, and great increase of land discovered to have taken place, about the time when the worship of Vishnoo was introduced into the southern peninsula; which being a date tolerably ascertained, may possibly guide some future visitor in fixing the age of the various structures; especially if assisted by some translation of the inscriptions which were unfortunately quite unintelligible to me.

It will be observed that I have made the freest use of the accounts of other travellers: partly, in order to present in a general view the remarks now scattered in half a dozen volumes, and partly in order to support by the authority of others, the conclusions drawn in my own confessedly hasty visit. Had I only been as well acquainted at that time as I am now, with the writings of my predecessors, I should have investigated far more closely several points that I now perceive with regret I almost overlooked. The shore temple alone can be said, to have been thoroughly examined: and I suppose it must have been deemed less worthy of notice by former travellers: else I do

not understand how it could escape* remark that the original entry of the building, must have been through the portico which is in rear at present. I trust what I have said may draw the attention of men better versed in Indian antiquities to the subject of the direction in which the entrance is placed in Hindu temples: as it may possibly prove characteristic of some particular sect or epoch. At the present day, all temples in these Upper Provinces (and as far as my observation goes, in the other Presidencies also) are turned towards the east: and a Brahmin at Huridwar gave me as a reason, the rising of the sun in that quarter. I remember† to have seen one exception (besides the Kylas at Ellora already mentioned;) which is on the grand trunk-road on the banks of the Burachur near Tal-danga. In a group of four temples, not differing essentially in style or architecture, and all apparently quite modern, one is turned to the west, while all the others are to the east, I could not discover that they belonged to different divinities, but there was no person near from whom I could positively ascertain that such was not the case.

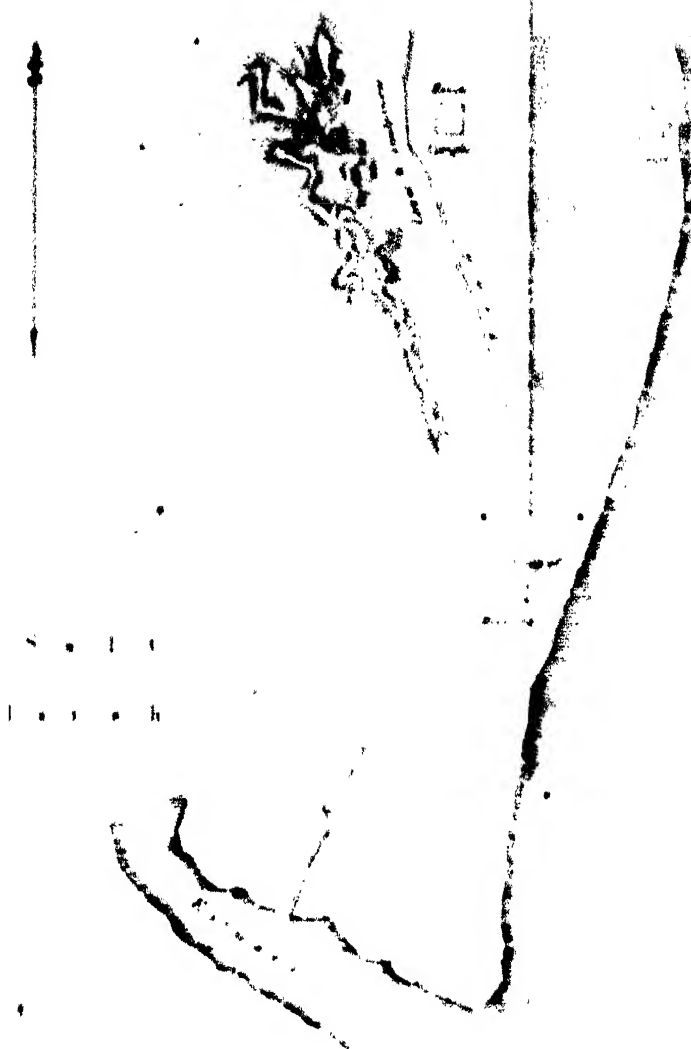
Another point that strikes me as deserving attention, more particularly from Engineers and persons engaged on public works, is the very great durability of the basaltic rock as compared with the granite of the Coromandel coast. We have no reason to believe that the umbrella-shaped summits of the temples, which for want of a better term I have called *chailyas*, are otherwise than contemporaneous with the rest of the temple; and they are of course equally exposed to the spray and saline atmosphere: yet they appear perfectly fresh and uninjured, while the granite has lost the whole of its outer surface by gradual disintegration and exfoliation.

I append two sketch plans to elucidate the above descriptions of locality: but they have no pretensions to strict accuracy, being done entirely from memory, months after I visited the place.

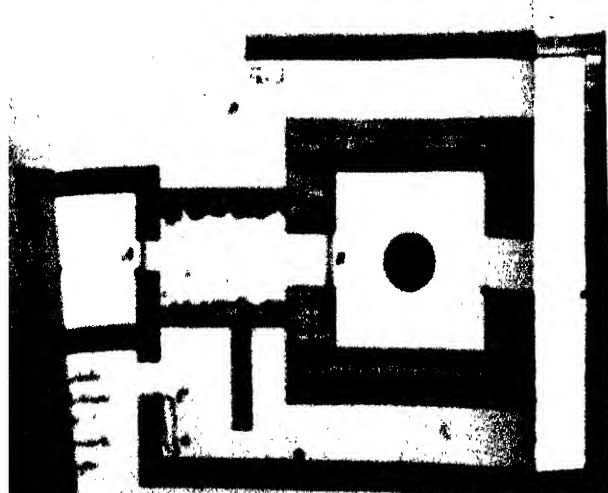
* I have not been able to procure the papers of Mr. Babington or of Mr. Walter Elliot on the subject: but of the four or five I have perused no one touches this point.

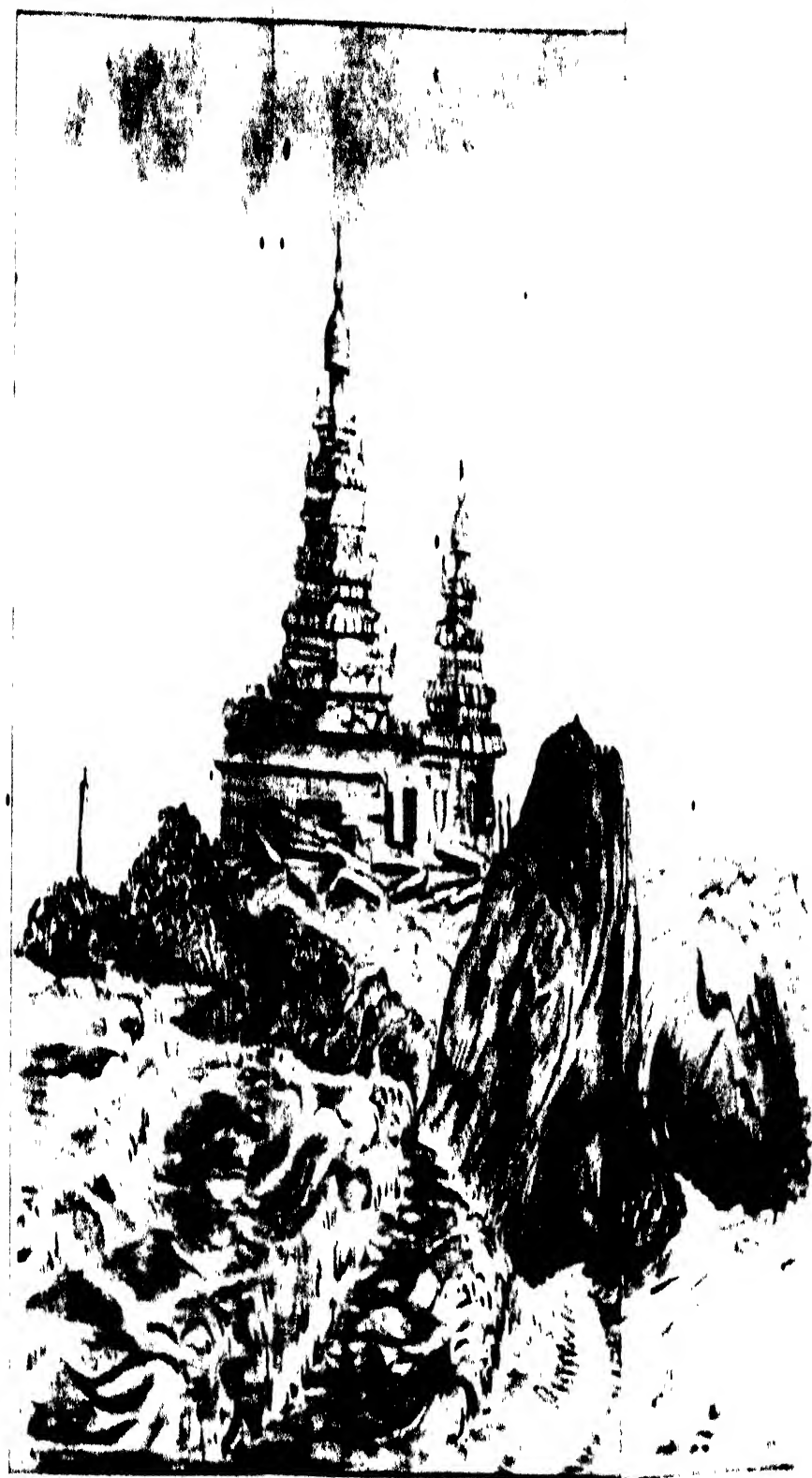
† And I think that among the Aryan temples of Cashmere, is said to be a group of four facing to all four cardinal points.

*Sketch Plan
of the country around
MAVELLIPOOR.*



*Sketch Plan of the Temple
in the 'Shore'*





Note on an ancient Inscription from Thánésvar. By BÁBU RÁJENDRALÁL MITTRA, *Librarian, Asiatic Society.*

Subjoined is the legend of a Sanscrita inscription lately found in the Thánésvar district. Mr. Bowring, to whom the Society is indebted for facsimiles of this interesting record, states "that it is engraved on a tablet of red sandstone in the temple of a follower of the Goraknāth persuasion, in the town of Pehewá, which is about fifteen miles west of Thánésvar." Regarding the circumstance under which it was discovered, Mr. B. adds, "I was marching from Patiala towards Thánésvar, and halted at Pehewá which is on the banks of the Saraswati river, and is a place of pilgrimage of some note, having been formerly known under the name of Prithudak. It is included in the limit of the sacred territory, known as the forty coss, that is, the distance between certain places, or the four points of the compass, within which the skirmishes of the Pándavas were carried on. The inscription was copied after my departure by the Thánádár of Pehewá, and is, as you will observe, reversed. I am not sure whether it will prove to be legible, as a part of the inscription is effaced. It is possible, however, that there may be interesting matter in it."

The document is divided into two portions, the first of which is in verse and comprises twenty-one lines, and the second is in prose and includes eight lines. They are both very imperfect, being full of lacunæ, and several letters from the beginning and end of every line effaced; the inscription, however, is of importance as throwing some light on an interesting but little known period of Indian history.

The researches of Wilford, Colebrooke and Tod have proved that three different sovereigns of central India have assumed the title of Bhoja Rájá. The first of these, according to Tod apud Prinsep, flourished about the end of the 5th century (483 A. C.) the other two in the middle of the 7th and the 10th centuries (665 and 1035 A. C.) respectively. These dates however, excepting the last, have not been proved by any authentic testimony, and the history of the three princes has been very much confounded by Orientalists. Prinsep makes the first Bhoja the nephew of Munja, while the astronomical and astrological works quoted by Colebrooke concur in

styling the latter as the uncle and predecessor of the third Bhoja, a statement fully borne out by the Jain MSS. of Col. Tod and the authorities cited by Wilford and Bentley. Colebrooke places the celebrated "nine jewels" of Vicramáditya in the court of the third Bhoja, while Prinsep, following Bentley, would have Kalidása flourish in the 5th century as a contemporary of the first king of that name.

If this imperfect inscription has been correctly read, these discrepancies are completely set at rest. It shows that the first Bhoja lived about three and a half centuries before the time assigned him by the learned historian of the Rajputs, and entirely overthrows the deductions of Bentley, regarding the age of Brahma Gupta, Vararuchi, and of some of the leading astronomical works of the Hindus, as far as they are based upon the era of the renowned sovereign of Dhára. The Bhoja of Prinsep and that of the inscription are both descended from Mahendrapála, but the former is the fourth, and the latter the tenth (if not more—for the last six lines being defaced it is impossible to be positive) in descent from that sovereign; the intervening names too are different; they stand thus:—

Prinsep (Tables p. 106.)

Inscription.

A. C.

402. Mahendrapála.

409. Karmehandra.

410. Vijyananda.

470. Munja.

483. Bhoja.

Mahendrapála.

Jatula.

————— ?

Vajrata.

Yajnika.

Sogga.

Purna.

Devarāja.

Rámachandra.

Bhoja. S. 179—A. C. 122.

Of Prithudaka, the pool, near which the inscription was engraved, nothing seems to be known, and the temple which bears its name and on which the inscription is recorded, although according to Mr. Bowring a place of pilgrimage, is not reckoned as such in the Puránas. But Kurukshetra itself, the battle-field of the Pándus, on which the empire of India has been more than once contested and lost, is a perfect *terra incognita* to the antiquarian, and would

prove a rich field to the tourist who with the *Mahābhārata* or the *Kurukshetra Mahatmya* by his side, could devote a fortnight to the wastes between Delhi and the Sutledge.

Inscription.

—शेषेषु सर्वात्मना, ध्वस्ते ध्वान्तरिपौ जने विघटिते खस्ते च तारागणे,
मये भूबलये गतेषु च तथा रत्नाकरेव्येकतामङ्गे यस्त्वपि प्र—
(१)—तदखिलं शार्ङ्गिणः कान्तमूर्तेः कान्तासङ्गस्फुरितसुभगस्त्रिगता-
राभिरामाः। उद्यत्तीव्रस्मरजलनिधौ मञ्जतः स्त्रीमुखेन्दुस्फारज्योत्स्ना-
श्व * *—(२)—बलाति दत्तं क्रियादुदयमस्तसमस्ततापम्। अथ्या-
सितं मुनिगणैरदितात्मबोधप्रध्वस्तगाढतिमिरप्रकटप्रमोदैः * *—(३)
—वातबद्धैः प्रलयजलधरैस्सम्यतत्सान्द्रधारः। नानाव्याधिप्रवरप्रचुर-
तरतमः पङ्कविध्वंसभानुर्नीरत्नैस्तत्समन्ताद्यनुदुरित—(४)—मृद्व्या नि-
न्दातः परबलघ्नादसं समन्तात्। स श्रीमाञ्जयति महेन्द्रपालदेवः शा-
न्तारिः शशधरसुन्दरः शरण्यः ॥ * सीता * * * *—(५)—वृत्तशै-
लाशनिः। नाम्ना जातुल इत्यपूर्वचरितः ख्यातो दयालवृत्तिस्तत्त्वा-
लोकविलोकितः क्षितिपतिव्यापारलब्धोदयः। ये तज्ज्ञातिकुलं क—
(६)—सकले क्लृप्तोपहारं भुवः। कोर्त्या यस्य च नाकराजनिकरथा-
सङ्गतः सङ्गमाद्योम्रश्च स्फुरदिन्दुसुन्दरतया स्वस्मिंश्च लीलायितम्।
प्रतिविश—(७)—स्फारमारोपितानि। जगति विततभासा येन दूरं
विभान्ति स्वयंश्च इव निरोद्धं शङ्खवो दिङ्निखाताः ॥ तत्सन्तानमहोदधेः
प्रमुदितप्रोद्यद्भुज * *—(८)—दः। प्रख्यातादजनि स्ववंशतिलकः
श्रीवच्छटाख्यः प्रभुः प्राप्ताशेषमनोरथशुभतरव्यापारतुङ्गेव्रतिः ॥ तस्य
स्फुरदिन्दुवधिः सौरेरिव जय—(९)—व गिरिशस्य ॥ तस्मात्तस्यां
यज्ञकः प्रादुरासीदुच्चैश्शान्तस्मत्सु निर्मत्सरेषु। क्रोडत्वेतुर्दुर्द्धराराति
वक्त्रे क्रुद्धत्वेनाकुञ्जरध्वान्तशोभे ॥ तस्य—(१०)—रोद्धरणोरुकीर्तेः।
सदृत्तरक्तवनितातिलकाङ्गकल्पे कान्ते बभूवतुखदारशशाङ्गकान्ते ॥
एका चन्द्रेति विख्याता द्वितीया शङ्खटेति च। * *—(११)—जति
शेखरनामधेयो वीराणां धुरि विनिवेशितो विधात्रा। भूनायो दिघदि-

भकुम्भभेदनिर्यन्मुक्ताभिः खचितमही * * * तासिः ॥ प्रतरति—(१२)
 —लसैनिकाम्भोरुहम् । अधर्मपरिपन्थिनं तदनु पूर्णराजं सुतं खवं
 श्रगगनोदरे तुङ्घिन * * चिन्तां * * । कुरुत नखरिताधरप—(१३)
 —लैर्यदरिस्त्रियस्सरलितप्रचुरालककज्जलकाः ॥ तस्य भ्राता गुणनि-
 धिरभृत्सोदरो देवराजः स्फूर्ज्जत्तेजःप्रविहृतपरस्फारसेनान्धकारः । *
 (१४)—ह्यायस्तखरिव ततस्सत्फलानम्यमूर्त्तिः ॥ नामापि प्रकटतरं नि-
 शम्य यस्य क्रुद्धस्य भुक्नुटितरङ्गिताननस्य । दृप्तानां युधि विकसद्विशद
 भासा—(१५)—भीरुहंसरसमथितां यस्य ताद्वितान्तमगमत्तृणक्षय-
 मुप * * मा * * । व्यापूर्णं त्ववसम्भ्र*त्प्रतिभटतद्दन्तिनां घटावि-
 घटनोन्मुखी—(१६)—रुन्म्याब्धमेण प्राप्तश्रीकास्तुभतरधियस्साधुर-
 त्तास्त्रयोपि । विप्रैस्त्रैधात्यतुलमहसं मारयामासुरत्र चस्तास्तीला-
 भवजलनिधे * * *—(१७)—पुरतो देवराजेन धनानुतमगच्छिदे*च-
 तुस्समुद्रसोमाङ्गं यावदेतन्महीतले । इदममया ततं तावद्विभातुसदनं
 श्रियः । * *—(१८)—नः । काम्बोजजः प्रभुमनद्धमलदि*र्यौ रामस्य
 स्रनुरिह कारयिताथ * * * ॥ यत् कपोपकृतामेको द्वितीयो गेज्ज-
 मानिव । पाटलाख्यस्ततो * *—(१९)—सारं दृष्टोच्चैः कर्त्तव्या स-
 दुद्धिः ॥ खकुलगगन—कार प्रसक्तः—खल्विदञ्च विदित्वा
 भट्टरामलक्ष्मीधरेण कृतमधुरधु * * * * *—(२०)—बभूव तत्त-
 धारोत्र दुर्लभादित्यसंज्ञितः ।—लादित्येनधीमता—

परमभट्टारकमहाराजाधिराजपरमेश्वरश्रीरामचन्द्रदेवपादान्त-
 ख्यातपरमभट्टारकमहाराजाधिराजपरमेश्वरश्रीभोजदेवपादानाम-
 भिप्रवर्द्धमानक(१)ल्याणविजयराजधर्मपरमवृद्धये महाशुभ्यधिकवै-
 शाखमासशुक्लपक्षसप्तम्यां संवत् २७६ वैशाखशुदि ७ अस्यां संवत्सरदि-
 वसमासपूर्वा(२)यां तिथाविह श्रीष्टूदकाधिपा येषि स्वाधीनवत्तस्यां
 घोटकयात्रायां समायातनटधार्मिकजहद्वीरकसुत चन्द्र तथा राज्य
 बल तथा वल्लकपाण्डुकसुत सत्यसिंह उद्यति (३) ह्यथभट्टकमतमा-
 ज्ञाय विलासवरेण सह तथा धिकारिमल्ल रणपरिवर्द्धक तद्वत्

सुत जयनाकविष्वसुत आदित्यनाकरत्नकरवरेण सह तथा रत्नक-
 कर्णक (४) सुत रामकबलदेवप्रवीरस्य तत्सुत श्वेतम्भगाङ्ग शरीरकर्षक-
 सुत वर्णकवचङ्गर्षकसुत शुक्रमणीज्यसुत उपभारसार ऊडिकत्यसार-
 सुत लाभट (५) तथा शङ्करवक्त्रकसुत उद्धवादित्य श्रीगुप्तदत्तकत्यवक्त्र-
 कसुत रत्नक जयवर्द्धकसुत रतिवर्द्ध * * * * क सूरसुत भ्रमदुःख-
 घाटकीय धारदसुत चन्द्रपङ्क शैलकसुत सर्व (६) देव धर्मसुत कफ-
 वक्त्रक पूर्वकगृहवीर्या * * * लक्ष्मिकसुत खामिशकसिंहकसुत—
 ——शोधरसुत पौण्ड्र दत्तकसुत दत्त ————क*सुतकसुत
 ————(७) व*त्य उद्धमसुत रत्नप*सुत सुसुभवि*सुत भयचै-
 तन्यधर ————हरकसुत श्रीश्रीछायाभक्तसुताय प्रयच्छति यथा
 भवद्भिः

Translation.

Line 1. * * * * May he who sleepeth in the embrace of [Sesha],
 when even the soul of the enemy of darkness ceaseth to be, when
 the career of mankind knoweth no change, when the stars vanish and
 the horizon of the earth is destroyed, when the [different] oceans
 [which surround the globe] all merge into one [may he vouchsafe
 prosperity to thee.]

Line 2. * * * * It is the most beneficent aspect of the god of
 the horny-bow. Delighted in the company of his beloved, pleasing
 as the sweet soothing stars, merged in the ocean of ardent love * * *
 radiant beams from the moonlike face of women * * * *

Line 3. * * * * May he grant such vigour as knoweth no
 failing! Seated in the heart of sages, whose knowledge of them-
 selves has dispelled deep darkness from their mind, who are ever
 contented * * * *

Line 4. * * * * The cloud at the time of the destruction
 of the earth pouring without intermission. Abounding in many a
 dire disease; like a sun for the destruction of the soft clay * * * *

Line 5. * * * * Envied another's might. May he prosper, the
 illustrious Mahendrapála Deva, the victorious over his enemies, the
 beautiful as the moon, the asylum of all * * *

Line 6. * * * * By name Játula, of excellent character, renowned and adorned with (the modest ornament of) mercy, radiant with the light of true knowledge, and glorious in kingly career * * * *

Line 7. * * * * The glory of his deeds made his very body brilliant as the sky, bright with the radiant moon * * * *

Line 8. * * * His columns of victory in the different quarters of the earth were planted by him, as if to prevent his fame spreading wide * * * *

Line 9. * * * * The noblest of his race Lord Sri Bajrata, who had obtained all he wished, whose greatness was extreme in all auspicious actions, whose beauty was bright as the radiant moon, was born of that celebrated * * * *

Line 10. * * * * Of her was born Yajnika, the gentlest among the unenvious; his banner moves triumphant among the mighty legions of his enemies, dismal with numberless elephants * * * *

Line 11. * * * * [He] the renowned in battle had two wives, both great as if they were the crowning jewels of all well-behaved women, and beautiful as the full moon. Of them, one was called Chandrá, and the other Sankatá * * * *

Line 12. * * * * His name was Sogga; the creator of the world had placed him foremost among heroes, he was the Lord of the earth. Through the vigour of his scymetar pearls from the forehead of the elephants of his enemies had adorned this earth * * * *

Line 13. * * * * Afterwards he got a son named Purna rájá who was an enemy to vice and * * * *

Line 14. * * * * His brother Deva rája by name was the receptacle of all [noble] qualities. His vigour dispelled the clouds of his enemies * * * *

Line 15. * * * Of form like a verdant tree bent down by the weight of the delicious fruit [of goodness]. The mere mention of his majestic name overcast with a frown * * * *

[Lines 16 to 21 undecipherable.]

For the promotion of the prosperity, success and the good government of the most venerable, the king of kings, Lord Sri Bhoja Deva, successor of the most venerable, the king of kings, the deceased Sri Ráma Chandra Deva, the proprietors of Sri Prithudaka, on

the 7th day of the white half of the moon, in the month of Vaisákha of the Samvat era 179, by the advice of those who had, as independent men, assembled here at the horse festival, [such as] Chandra son of Natadhármika son of Hatta Vira, Rájyabala, Ballaka, Satya Siñha son of Pánduka, and Uddyati Kritya Bhattaka, to Vilásavara, Dhikkári Malla son of the valiant Takshaka, the noble Adityanáka Ratnákara son of Jaya Náka Bilva, also Rámaka son of Rahuka Karanaka, Baladeva, and his son Právira, Sweta Mrigánka, Varana Kavachankarsaka son of Sarirakarsaka, Sukamaniyya and his son Upabhárasára, and son of Lábhata Sava Hurikatyasára, and also Uddhaváditya son of Sunkara Ballaka, Rakshaka son of Sri Gurudaksha Kritya Ballaka, son of Ratibardhaka, Yaya Bardhaka, Bhramadukshaghátakiya ——— son of Sura Chandrapanka, Sarva Deva, Dharatta son of Saunaka, Kafabálhaka Dharmya's son, (after several other undecipherable names) and Sri Krishna son of Bhacta, presented * * * * *

PROCEEDINGS
OF THE
ASIATIC SOCIETY OF BENGAL,
FOR NOVEMBER, 1853.

The Society met on the 2nd instant at the usual hour.

SIR JAMES COLVILLE, Kt., President, in the Chair.

The proceedings of the last month were read and confirmed, and the accounts and vouchers for the month of September laid on the table.

Presentations were received—

1st. From the Bengal Government, through W. G. Young, Esq., Under-Secretary, for the Museum of Economic Geology. Specimens of Rocks collected by Lieut. Furlong of the 1st Madras Native Infantry, at Kaizawalajong, during a march with a detachment on the route between Padong and the Tongoop pass.

2nd. From J. A. Cockburn, Esq., Superintendent of the Barrackpore Park. A dead *Janghil Bird*. *Tantalus leucocephalus*, GM.

3rd. From J. Avdall, Esq., a new Dictionary in Italian, French, Armenian and Turkish.

4th. From R. Houstoun, Esq., a Mug MS. of medicine entitled *Maha-thanada-yea*.

Rájá Is'riprasád of Benares was named for ballot at the next meeting; proposed by Mr. Hall and seconded by the President.

The Council submitted a report, recommending that a grant of Co.'s Rs. 1000 (one half that amount from the Oriental Fund) be sanctioned for the purpose of four more glazed book-cases; two for the preservation of the Sanskrit MSS. transferred to the Society from the College of Fort William, and the other two for the Society's Library.

Ordered that the grant asked for by the Council, be placed at their disposal for the purpose in question.

Communications were received—

1st. From Major A. Cunningham, forwarding a plate of Kangra coins, and promising to send a descriptive account of the coins so soon as the plate shall have been engraved.

The following is an extract from Major C.'s letter.

"I have made out this plate after examining all Bayley's coins, which have given me about five specimens in addition to those which I had before; I have also collated all the genealogies, and I am happy to say that their general agreement with one another and, more particularly, with numerous synchronous Princes in other states, is very satisfactory. The data for establishing the Chronology are sound and good, and as they extend over a considerable period, we have the means of fixing the approximate dates of the earlier Kings.

"The earliest ascertained date is A.D. 804, and the average length of reign from that time to the present is 1,326 years."

2nd. From Rev. N. Brown of Sibsagar, Assam, enclosing a list of Assamese works published at the American Mission Press at Sibsagar.

3rd. From A. Campbell, Esq., Darjeeling, enclosing an abstract of the Register of rain-fall kept by Dr. Withecombe at Darjeeling, from 1st January to the 1st October, 1853.

"The maximum fall for a whole year," says Mr. C. "was 135 inches in 1850, and the minimum 114 inches in 1852. I believe after a residence of many years that 125 inches may be taken as the average annual fall at Darjeeling.

"I am not able to supply any detail of the annual rain-fall at Cheera Punjee, but from Lieut. Yule's observation (see Journal Asiatic Society) and from Dr. Hooker's letter to me from that place in 1850, I believe that the annual fall of rain there varies from 360 to 500 inches per annum."

4th. From Capt. Thuillier, communicating a paper entitled "Notes upon some atmospherical phenomena observed at Darjeeling, in the Himalayah Mountains, during the summer of 1852," by Capt. W. S. Sherwill.

The Librarian and the Curator in the Zoological Department having submitted their usual monthly reports the meeting adjourned.

Read and confirmed, 7th Dec. 1853.

(Signed) J. W. COLVILLE.

LIBRARY.

The following additions have been made to the Library since the last meeting.

Presented.

Archæologia: or Miscellaneous Tracts relating to antiquity. Vol. XXXV.—BY THE SOCIETY OF ANTIQUARIES OF LONDON.

Catalogue of the Kerrich Collection of Roman Coins 1852.—BY THE SAME.

Proceedings of the Society of Antiquaries of London. Nos. 33 to 36.—BY THE SAME.

Bombay Magnetical and Meteorological Observations for 1850.—BY THE GOVERNMENT OF BOMBAY.

A Map of the District of Purneah surveyed by J. Fitzpatrick and J. J. Pemberton.—BY THE GOVERNMENT OF BENGAL.

Revenue Meteorological Statements of the North West Provinces for the several official years from 1844-45 to 49-50. Agra 1850, 4to.—BY THE GOVERNMENT OF THE NORTH WESTERN PROVINCES.

Report of the Inspector General of Prisons for 1852.—BY THE SAME.

The Satyarnab, No. 1, of Vol. IV.—BY THE REV. J. LONG.

The Oriental Baptist, No. 82.—BY THE EDITOR.

The Calcutta Christian Observer, for October 1853.—BY THE EDITORS.

The Upadeshak, No. 82.—BY THE EDITOR.

The Oriental Christian Spectator for August 1853.—BY THE EDITORS.

A Plan for the future Government of India. By J. S. Buckingham, Esq. Pamphlet.—BY THE AUTHOR.

On the Cyclone Wave in the Sunderbunds. A letter to the Most Noble the Governor-General of India, by H. Piddington, Esq. Calcutta, 1853. Pamphlet.—BY THE AUTHOR.

The Citizen for September, 1853.—BY THE EDITOR.

Journal of the Indian Archipelago. Nos. for February and March.—BY THE EDITOR.

Exchanged.

The Calcutta Review. No. 41.

Purchased.

Shore on Indian Affairs, 2 vols. 8vo.

Gleig's Memoirs of Warren Hastings, 3 vols. 8vo.

Malcolm's Life of Clive, 3 vols. 8vo.

Sutherland's Dattakamimānsā.

Masson's Journey to Khelat, 1 vol. 8vo.

Siely's Wonders of Ellora, 1 vol. 8vo.

Scott's History of Dekkan, 2 vols. 4to.

Pogson's History of the Boondelas, 4to.

Burnes's Visit to Scinde, 12mo.

Wynch's Dāya Krama Saṅgraha, 4to.

RA'JENDRALA'L MITTRA.

FOR DECEMBER, 1853.

At a meeting of the Society held in the Society's Rooms, Park Street, on the 7th instant, at the usual hour,

Sir JAMES COLVILLE, Kt. President, in the chair.

The minutes of the last month were read and confirmed, and the accounts and vouchers for the month of October laid on the table.

Presentations were received—

1st. From Mons. Stanislas Julian, the first volume of his *Life and Travels of Hiuean Thsang*.

2nd. From J. J. Gray, Esq. a MS. copy of the *Ryas-us Saláteen, a History of Bengal in Persian*, by Gholam Hossein.

3rd. From the Government of Bengal, for the Museum of Economic Geology, through W. G. Young, Esq. Under-Secretary, a map of the district of Tirhoot.

4th. From F. L. Beaufort, Esq. an image of Vishnu found in the bed of a Nallá in the Pubnah district.

5th. From Mons. E. Mulsant, Secretary to the Société Royale des Agriculture, &c. de Lyon. *Memoirs of the Academy for 1851*.

6th. From Shah Kabeer Uddeen. The following Persian works:
Dele Sard,
Náláa Dard.

7th. From Captain Hayes. A collection of ancient coins from Lucknow.

8th. From H. Piddington, Esq. Clay Figures of Káluráya and Dakhinráya, forest gods of the Hindus, found on Saugor Island.

9th. From J. Ritchie, Esq. of Bombay, through Mr. Piddington, a lithographed copy of the Map of Bengal and the Sunderbund, published in De Barros's History.

Rájá Isriprasád of Benares, duly proposed and seconded at the last meeting, was balloted for and elected an ordinary member.

The following gentlemen were named for ballot at the next February meeting.

Bábu Nagendranáth Tagore,—proposed by Sir James Colville, and seconded by Dr. Sprenger.

G. H. Freeling, Esq.—proposed by Mr. E. Thomas, and seconded by Mr. Grote.

The Council gave notice that at the next anniversary meeting of the Society, they will propose that Section 6 of the Code of Bye-Laws be modified by omitting the words "is anxious to promote the progress of science and literature, and."

Dr. Falconer gave notice of his intention to propose that rule 6 be altered into the form originally proposed in the Draft Code.

Mr. Piddington sent, for exhibition at the meeting, a copy of the Admiralty Chart of the N. W. Passage, just published.

Communications were received—

1st. From W. G. Young, Esq. Under-Secretary to the Government of Bengal, stating that the Most Noble the Governor of Bengal would be glad to have any opinion or suggestion which the Society may desire to offer relative to the best way of preserving any of the ruins at Gour from further destruction.

Copy of the reply which the Council proposed to dispatch, was read and approved of.

2nd. From the same, enclosing a paper, by Capt. J. C. Haughton, on the Geological Structure and mineral resources of the country comprised within the Singbhoom division of the South-West Frontier Agency, together with a map to illustrate the same.

3rd. From Bábu Rádhánáth Sickdár, Meteorological Register kept at the Surveyor General's Office, Calcutta, for the month of October.

4th. From the Secretary, Geological Society of London, acknowledging receipt of the Journal, Nos. 230-31.

5th. From J. Barlow, Esq. Secretary, Royal Institution, London, acknowledging receipt of the Journal, Nos. 233-34.

The Librarian having submitted his usual monthly report, the meeting adjourned.

Read and confirmed, 4th January, 1854.

(Signed) J. W. COLVILLE.

LIBRARY.

The following additions have been made to the Library since the November meeting.

Presented.

Literaturgeschichte der Araber. Von ihrem Beginne bis zu Ende des zwölften Jahrhunderts der Hidschret. von Hammer-Purgstall. Vierter Band.—BY THE AUTHOR.

Memoires de la Société Royale d'Agriculture, Histoire Naturelle et Arts Utiles de Lyon, 1825-1836, 5 volumes.—BY THE SOCIETY.

Compte Rendu des Travaux de la Société Royale d'Agriculture, Histoire Naturelle et Arts Utiles de Lyon, pour l'années 1813-15-17-19-21 et 24, 6 volumes.—BY THE SAME.

Annales des Sciences Physiques et Naturelles d'Agriculture et d'Industrie, publiée par la Société nationale d'Agriculture, etc., de Lyon. Tome III.—BY THE SAME.

Memoires de l'Académie Nationale des Sciences Belles-lettres et Arts de Lyon. Classe des Sciences, Tome 1er.—BY THE ACADEMY.

Ditto ditto, Classe des lettres, Tome 1er.—BY THE SAME.

Collection Orientale. Burnouf's Bhágavat, vol. III.—BY THE IMPERIAL GOVERNMENT OF FRANCE.

Lexicon Geographicum cui titulus est *مرصد الاطلاع على اسماء الامكنة* و *النفع* Quintum fasciculum et sextum. Edidit T. G. J. Juynboll.—PRESENTED BY THE CURATORS OF THE ACADEMY OF LEYDEN.

Specimen e literis orientalibus, exhibens historiam Kalifatus al Walidi et Solaimáni, sumtum ex libro, cui titulus est: *كتاب العيون والحد* e codice Ley. nunc primum edidit Jacobus Anspach. Pamphlet.—BY THE SAME.

Memoires de la Société des Sciences Naturelles de Cherbourg, 1er. volume, 1 livraison.—BY THE SOCIETY.

Journal of the Royal Asiatic Society of Great Britain and Ireland. Vol. XV. p. 1.—BY THE SAME.

The Thirtieth Annual Report of the Royal Asiatic Society.—BY THE SAME.

Selections from the Public Correspondence of the Administration for the Affairs of the Punjab, No. 5, 4 copies.—BY THE CHIEF COMMISSIONER OF THE PUNJAB.

The History of Rájá Pratapaditya, the last king of Sagur Island, by Harishchandra Tarkalankár.—BY THE REV. J. LONG.

Selections from the Bengali Periodical Press.—BY THE SAME.

Charupátha, or Entertaining Lessons in Bengali. By Akshayakumára Datta.—BY THE AUTHOR.

Nálaç Durd—a Persian work on Devotion.—BY SHAH KUBEER-UDDEEN.

Delé Surd, ditto.—BY THE SAME.

The Missionary, vol. III. No. II.—BY THE EDITOR.

The Oriental Christian Spectator for October, 1853. BY THE EDITORS.

The Bibidharta Sangraha, No. 22.—BY THE EDITOR.

The Satyarnab for November, 1853.—By THE REV. J. LONG.

A Map of India, chiefly compiled from Trigonometrical Surveys, executed, by order of the Hon'ble Court of Directors, by J. Walker.—By THE GOVERNMENT OF INDIA.

Exchanged.

The London, Edinburgh and Dublin Phil. Magazine, No. 38.

The Athenæum for September, 1853.

Purchased.

The Birth of the War-God, a poem by Kalidása. Translated from the Sanskrit into English verse.—By RALPH F. H. GRIFFITH, M. A.

Journal des Savants, July and August, 1853.

Comptes Rendus, Nos. 5 to 10, for July.

Ritter's Atlas.

Thomson's Travels in Western Himalaya and Tibet.

Michaud's Bibliothecque de Croisades.

December, 7th 1853,

RA'JENDRALAL MITTAL.

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta, in the
month of June, 1853.*

Latitude 22° 33' 1" North. Longitude 88° 20' 34" East.

| Date. | Mean Height of the Barometer at 32° Fahr. | Range of the Barometer. | | | Mean Dry Bulb Thermometer. | Range of the Tem- perature. | | |
|-------|---|-------------------------|---------|---------|-------------------------------|--------------------------------|------|-------|
| | | Max. | Min. | Diff. | | Max. | Min. | Diff. |
| | Inches. | Inches. | Inches. | Inches. | o | o | o | o |
| 1 | 29.645 | 29.707 | 29.574 | 0.133 | 87.5 | 96.3 | 77.7 | 18.6 |
| 2 | .600 | .651 | .534 | .117 | 85.6 | 97.0 | 79.7 | 17.3 |
| 3 | .517 | .586 | .436 | .150 | 84.5 | 92.0 | 76.7 | 15.3 |
| 4 | .457 | .524 | .381 | .143 | 87.8 | 95.9 | 77.8 | 18.1 |
| 5 | <i>Sunday.</i> | | | | | | | |
| 6 | .468 | .545 | .413 | .132 | 86.2 | 94.0 | 79.4 | 14.6 |
| 7 | .504 | .552 | .457 | .095 | 84.0 | 88.0 | 69.0 | 19.0 |
| 8 | .529 | .597 | .440 | .157 | 84.4 | 93.5 | 75.1 | 18.4 |
| 9 | .495 | .538 | .429 | .109 | 87.0 | 92.0 | 74.9 | 17.1 |
| 10 | .454 | .536 | .391 | .145 | 89.1 | 93.8 | 81.6 | 12.2 |
| 11 | .534 | .607 | .463 | .144 | 89.0 | 94.1 | 81.7 | 12.4 |
| 12 | <i>Sunday.</i> | | | | | | | |
| 13 | .637 | .688 | .568 | .120 | 88.2 | 94.9 | 80.3 | 14.6 |
| 14 | .641 | .710 | .562 | .148 | 89.7 | 98.8 | 80.5 | 18.3 |
| 15 | .682 | .732 | .621 | .111 | 87.6 | 93.6 | 80.8 | 12.8 |
| 16 | .682 | .757 | .596 | .161 | 88.8 | 95.2 | 80.0 | 15.2 |
| 17 | .601 | .684 | .511 | .173 | 89.0 | 97.0 | 79.2 | 17.8 |
| 18 | .505 | .571 | .425 | .146 | 86.2 | 91.0 | 79.5 | 11.5 |
| 19 | <i>Sunday.</i> | | | | | | | |
| 20 | .459 | .525 | .399 | .126 | 81.8 | 86.3 | 74.9 | 11.4 |
| 21 | .483 | .528 | .420 | .108 | 82.7 | 87.3 | 78.0 | 9.3 |
| 22 | .494 | .541 | .440 | .101 | 85.6 | 91.5 | 76.8 | 14.7 |
| 23 | .522 | .579 | .469 | .110 | 86.6 | 92.4 | 79.0 | 13.4 |
| 24 | .494 | .541 | .424 | .117 | 87.1 | 93.0 | 77.0 | 16.0 |
| 25 | .449 | .511 | .389 | .122 | 85.3 | 93.6 | 79.8 | 13.8 |
| 26 | <i>Sunday.</i> | | | | | | | |
| 27 | .505 | .574 | .438 | .136 | 84.1 | 88.6 | 77.1 | 11.5 |
| 28 | .481 | .533 | .411 | .122 | 85.9 | 91.8 | 77.4 | 14.4 |
| 29 | .464 | .501 | .413 | .088 | 83.6 | 86.7 | 78.0 | 8.7 |
| 30 | .480 | .517 | .411 | .106 | 84.7 | 91.6 | 77.0 | 14.6 |

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta, in the
month of June, 1853—(Continued.)*

| Date. | Mean Wet Bulb Ther- mometer. | Dry Bulb above Wet. | Computed Dew Point. | Dry Bulb above Dew Point. | Mean Elastic force of Vapour. | Mean Weight of Vapour in a cubic foot of air. | Additional weight of Va- pour required for com- plete saturation. | Mean degree of Humi- dity complete satura- tion being unity. |
|-------|---------------------------------|---------------------|---------------------|------------------------------|----------------------------------|--|---|--|
| | ° | ° | ° | ° | Inches. | T. gr. | T. gr. | |
| 1 | 79.8 | 7.7 | 77.0 | 10.5 | 0.909 | 9.67 | 3.82 | 0.717 |
| 2 | 80.5 | 5.1 | 78.7 | 6.9 | 0.960 | 10.26 | 2.50 | .804 |
| 3 | 81.0 | 3.5 | 79.8 | 4.7 | 0.995 | 10.64 | 1.71 | .862 |
| 4 | 82.3 | 5.5 | 80.5 | 7.3 | 1.016 | 10.83 | 2.77 | .796 |
| 5 | <i>Sunday.</i> | | | | | | | |
| 6 | 82.1 | 4.1 | 80.7 | 5.5 | 1.023 | 10.91 | 2.08 | .840 |
| 7 | 81.2 | 2.8 | 80.2 | 3.8 | 1.009 | 10.79 | 1.38 | .887 |
| 8 | 80.5 | 3.9 | 79.1 | 5.3 | 0.973 | 10.42 | 1.83 | .846 |
| 9 | 83.2 | 3.8 | 82.0 | 5.0 | 1.066 | 11.36 | 1.93 | .835 |
| 10 | 83.7 | 5.4 | 82.0 | 7.1 | 1.065 | 11.31 | 2.81 | .801 |
| 11 | 83.4 | 5.6 | 81.5 | 7.5 | 1.051 | 11.13 | 2.95 | .790 |
| 12 | <i>Sunday.</i> | | | | | | | |
| 13 | 81.6 | 6.6 | 79.3 | 8.9 | 0.979 | 10.40 | 3.36 | .756 |
| 14 | 82.4 | 7.3 | 79.9 | 9.8 | 0.998 | 10.56 | 3.81 | .735 |
| 15 | 82.0 | 5.6 | 80.1 | 7.5 | 1.004 | 10.67 | 2.85 | .789 |
| 16 | 81.5 | 7.3 | 78.9 | 9.9 | 0.968 | 10.26 | 3.74 | .733 |
| 17 | 81.1 | 7.9 | 78.3 | 10.7 | 0.948 | 10.05 | 4.03 | .714 |
| 18 | 80.5 | 5.7 | 78.4 | 7.3 | 0.953 | 10.15 | 2.84 | .781 |
| 19 | <i>Sunday.</i> | | | | | | | |
| 20 | 80.2 | 1.6 | 79.6 | 2.2 | 0.990 | 10.65 | 0.75 | .934 |
| 21 | 79.8 | 2.9 | 78.8 | 3.9 | 0.963 | 10.36 | 1.36 | .884 |
| 22 | 81.4 | 4.2 | 80.0 | 5.6 | 1.000 | 10.68 | 2.08 | .837 |
| 23 | 81.2 | 5.4 | 79.3 | 7.3 | 0.980 | 10.44 | 2.70 | .795 |
| 24 | 81.1 | 6.0 | 79.0 | 8.1 | 0.970 | 10.33 | 3.00 | .775 |
| 25 | 81.8 | 3.5 | 80.6 | 4.7 | 1.021 | 10.90 | 1.74 | .862 |
| 26 | <i>Sunday.</i> | | | | | | | |
| 27 | 81.1 | 3.0 | 80.1 | 4.0 | 1.003 | 10.75 | 1.46 | .880 |
| 28 | 81.1 | 4.8 | 79.4 | 6.5 | 0.983 | 10.47 | 2.40 | .814 |
| 29 | 81.0 | 2.6 | 80.1 | 3.5 | 1.005 | 10.75 | 1.28 | .894 |
| 30 | 81.7 | 3.0 | 80.7 | 4.0 | 1.023 | 10.95 | 1.47 | .882 |

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Meteorological Observations.

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*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta, in the
month of June, 1853—(Continued.)*

| Date. | Max. Solar radiation. | Rain. | Prevailing direction of the Wind. | General aspect of the Sky. |
|-------|-----------------------|---------|---|---|
| 1 | 112.9 | Inc. .. | Calm or S. E. | Cloudless till 2 A. M. \ i or \ i till 7 A. M. scattered \ i till 8 P. M. nearly cloudless afterwards. |
| 2 | 117.5 | 0.55 | S. E. | Cloudless till 4 A. M. \ i or \ i till 7 A. M. scattered \ i with little rain till 7 P. M. cloudless afterwards. |
| 3 | 116.0 | 0.15 | E. or S. E. | Cloudless till 4 A. M. \ i or cloudy with thunder and rain till 7 P. M. cloudless afterwards. [scattered \ i afterwards. |
| 4 | 124.0 | .. | [or S. E. S. or E. or N. N. E. | Cloudless till 5 A. M. cloudy till 8 A. M. |
| 5 | Sunday. | .. | S. or S. E. or calm. | Cloudless till 3 A. M. cloudy with rain and thunder afterwards. |
| 6 | 118.7 | .. | S. or S. E. or N. E. | Overcast with occasional drizzling. |
| 7 | .... | 0.18 | S. E. [or N. [ly the whole day. | Cloudy or overcast with occasional rain and thunder. [scattered \ i. |
| 8 | 98.0 | 0.75 | S. blowing high near. | Overcast with little rain and lightning or Overcast or scattered clouds. |
| 9 | 103.0 | .. | S. E. or S. blowing high the whole day. | Overcast or cloudy. |
| 10 | 109.0 | .. | S. or S. E. ditto. | Overcast with slight drizzling, or cloudy or scattered \ i. |
| 11 | 105.0 | .. | S. or S. E. | Cloudy or scattered \ i or \ i. [wards. |
| 12 | Sunday. | .. | S. E. or S. | Scattered \ i or \ i till 11 A. M. cloudy afterwards. |
| 13 | 115.5 | .. | Calm or S. S. E. or N. | Cloudy or scattered \ i or \ i. Little drizzling at 11 A. M. |
| 14 | 120.0 | .. | S. E. or E. | Overcast or scattered \ i till 7 P. M. \ i afterwards. |
| 15 | 113.0 | .. | Calm or E. or S. E. | Cloudy with occasional drizzling, or scattered \ i or \ i. |
| 16 | 121.5 | .. | E. | Cloudy the whole day, and drizzling till 2 A. M. [between 4 and 5 A. M. |
| 17 | 123.0 | .. | S. or S. S. W. | Cloudy the whole day and a shower of rain All kinds of clouds. [afterwards. |
| 18 | 109.0 | .. | [ly the whole day. | Cloudy or \ i or \ i till 8 P. M. cloudless |
| 19 | Sunday. | 1.32 | S. blowing high near. | Cloudy with occasional drizzling, or scattered \ i or \ i. |
| 20 | .... | 3.12 | Ditto. | Scattered \ i or \ i till 5 A. M. scattered \ i or cloudy with occasional rain afterwards. |
| 21 | .... | 0.48 | S. or S. W. | Cloudy. [occasional drizzling afterwards. |
| 22 | 103.8 | 0.14 | S. or S. W. | Scattered \ i or \ i till 8 A. M. cloudy with Overcast till 4 P. M. scattered \ i or \ i or cloudy afterwards since rain at 2 P. M. |
| 23 | 114.3 | 0.08 | S. E. | |
| 24 | 111.8 | .. | | |
| 25 | 108.0 | 0.72 | | |
| 26 | Sunday. | .. | | |
| 27 | 104.0 | 0.46 | | |
| 28 | 109.0 | 0.16 | | |
| 29 | 99.6 | .. | | |
| 30 | 109.4 | 0.16 | | |

\ i Cirri.
 ^ i Cumuli.
 - i Strati.
 ~ i Cirro-cumuli.

\ i Cirro-strati.
 ^ i Cumulo-strati.
 ~ i Nimbí.

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta, in the
month of July, 1853.*

Latitude 22° 33' 1" North. Longitude 88° 20' 34" East.

| Date. | Mean Height of the Barometer at 32° Fahr. | Range of the Barometer. | | | Mean Dry Bulb Thermometer. | Range of the Tem- perature. | | |
|-------|---|-------------------------|---------|---------|-------------------------------|--------------------------------|------|-------|
| | | Max. | Min. | Diff. | | Max. | Min. | Diff. |
| | Inches. | Inches. | Inches. | Inches. | ° | ° | ° | ° |
| 1 | 29.468 | 29.508 | 29.398 | 0.110 | 84.5 | 89.9 | 77.4 | 12.5 |
| 2 | .467 | .536 | .425 | .111 | 83.6 | 89.2 | 76.4 | 12.8 |
| 3 | <i>Sunday.</i> | | | | | | | |
| 4 | .524 | .576 | .444 | .132 | 84.8 | 89.5 | 77.0 | 12.5 |
| 5 | .496 | .537 | .426 | .111 | 85.7 | 91.2 | 77.8 | 13.4 |
| 6 | .500 | .540 | .441 | .099 | 85.2 | 91.8 | 78.0 | 13.8 |
| 7 | .510 | .554 | .463 | .091 | 82.8 | 91.7 | 77.5 | 14.2 |
| 8 | .487 | .542 | .426 | .116 | 84.5 | 89.2 | 78.2 | 11.0 |
| 9 | .429 | .482 | .358 | .124 | 83.7 | 87.6 | 75.5 | 12.1 |
| 10 | <i>Sunday.</i> | | | | | | | |
| 11 | .304 | .345 | .236 | .109 | 83.9 | 89.4 | 75.0 | 14.4 |
| 12 | .318 | .412 | .258 | .154 | 82.8 | 86.9 | 77.0 | 9.9 |
| 13 | .425 | .493 | .333 | .110 | 80.7 | 84.0 | 76.1 | 7.9 |
| 14 | .452 | .519 | .395 | .115 | 83.6 | 91.2 | 75.9 | 15.3 |
| 15 | .407 | .473 | .335 | .138 | 83.5 | 91.0 | 73.2 | 17.8 |
| 16 | .376 | .463 | .327 | .136 | 82.4 | 86.7 | .. | .. |
| 17 | <i>Sunday.</i> | | | | | | | |
| 18 | .513 | .555 | .448 | .107 | 84.2 | 89.8 | 75.0 | 14.8 |
| 19 | .459 | .528 | .371 | .157 | 84.4 | 91.0 | 76.0 | 15.0 |
| 20 | .411 | .456 | .359 | .097 | 85.7 | 91.5 | 78.3 | 13.2 |
| 21 | .416 | .460 | .360 | .100 | 85.5 | 90.1 | 79.2 | 10.9 |
| 22 | .411 | .491 | .343 | .148 | 84.5 | 89.8 | 78.0 | 11.8 |
| 23 | .531 | .604 | .468 | .136 | 84.9 | 90.0 | 77.7 | 12.3 |
| 24 | <i>Sunday.</i> | | | | | | | |
| 25 | .495 | .536 | .434 | .102 | 86.6 | 90.6 | 80.2 | 10.4 |
| 26 | .557 | .639 | .474 | .165 | 82.3 | 85.5 | 79.0 | 6.5 |
| 27 | .575 | .624 | .517 | .107 | 83.6 | 88.9 | 75.7 | 13.2 |
| 28 | .557 | .615 | .483 | .132 | 85.6 | 91.2 | 78.6 | 12.6 |
| 29 | .575 | .640 | .521 | .119 | 85.2 | 90.5 | 77.8 | 12.7 |
| 30 | .562 | .606 | .513 | .093 | 82.6 | 85.0 | 77.7 | 7.3 |
| 31 | <i>Sunday.</i> | | | | | | | |

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta, in the
month of July, 1853—(Continued.)*

| Date. | Mean Wet Bulb Ther- mometer. | Dry Bulb above Wet. | Computed Dew Point. | Dry Bulb above Dew Point. | Mean Elastic force of Vapour. | Mean Weight of Vapour in a cubic foot of air. | Additional weight of Va- pour required for com- plete saturation. | Mean degree of Humi- dity complete satura- tion being unity. |
|-------|---------------------------------|---------------------|---------------------|------------------------------|----------------------------------|--|---|--|
| | o | o | o | o | Inchs. | T. gr. | T. gr. | |
| 1 | 81.1 | 3.4 | 79.9 | 4.6 | 0.999 | 10.67 | 1.68 | 0.864 |
| 2 | 80.9 | 2.7 | 80.0 | 3.6 | 1.000 | 10.72 | 1.31 | .891 |
| 3 | <i>Sunday.</i> | | | | | | | |
| 4 | 81.6 | 3.2 | 80.5 | 4.3 | 1.017 | 10.89 | 1.57 | .874 |
| 5 | 81.5 | 4.2 | 80.1 | 5.6 | 1.003 | 10.71 | 2.09 | .837 |
| 6 | 81.8 | 3.4 | 80.6 | 4.6 | 1.022 | 10.90 | 1.71 | .864 |
| 7 | 81.0 | 1.8 | 80.4 | 2.4 | 1.014 | 10.90 | 0.85 | .928 |
| 8 | 81.4 | 3.1 | 80.3 | 4.2 | 1.012 | 10.82 | 1.53 | .876 |
| 9 | 81.0 | 2.7 | 80.1 | 3.6 | 1.004 | 10.75 | 1.32 | .891 |
| 10 | <i>Sunday.</i> | | | | | | | |
| 11 | 81.0 | 2.9 | 80.0 | 3.9 | 1.002 | 10.72 | 1.41 | .884 |
| 12 | 80.0 | 2.8 | 79.0 | 3.8 | 0.970 | 10.42 | 1.33 | .887 |
| 13 | 79.4 | 1.3 | 79.0 | 1.7 | 0.969 | 10.46 | 0.58 | .947 |
| 14 | 80.1 | 3.5 | 78.9 | 4.7 | 0.966 | 10.37 | 1.66 | .862 |
| 15 | 79.8 | 3.7 | 78.5 | 5.0 | 0.954 | 10.25 | 1.75 | .854 |
| 16 | 80.3 | 2.1 | 79.6 | 2.8 | 0.988 | 10.63 | 0.98 | .916 |
| 17 | <i>Sunday.</i> | | | | | | | |
| 18 | 79.6 | 4.6 | 77.9 | 6.3 | 0.938 | 10.04 | 2.20 | .820 |
| 19 | 80.5 | 3.9 | 79.1 | 5.3 | 0.973 | 10.42 | 1.89 | .846 |
| 20 | 81.9 | 3.8 | 80.6 | 5.1 | 1.021 | 10.90 | 1.90 | .852 |
| 21 | 81.8 | 3.7 | 80.6 | 4.9 | 1.019 | 10.90 | 1.82 | .857 |
| 22 | 81.5 | 3.0 | 80.5 | 4.0 | 1.017 | 10.89 | 1.46 | .882 |
| 23 | 81.6 | 3.3 | 80.5 | 4.4 | 1.016 | 10.89 | 1.60 | .872 |
| 24 | <i>Sunday.</i> | | | | | | | |
| 25 | 82.6 | 4.0 | 81.3 | 5.3 | 1.042 | 11.13 | 2.01 | .847 |
| 26 | 80.3 | 2.0 | 79.6 | 2.7 | 0.989 | 10.63 | 0.95 | .918 |
| 27 | 80.4 | 3.2 | 79.3 | 4.3 | 0.978 | 10.51 | 1.52 | .874 |
| 28 | 81.5 | 4.1 | 80.1 | 5.5 | 1.004 | 10.71 | 2.05 | .839 |
| 29 | 81.0 | 4.2 | 79.5 | 5.7 | 0.987 | 10.53 | 2.08 | .835 |
| 30 | 79.6 | 3.0 | 78.5 | 4.1 | 0.955 | 10.27 | 1.41 | .879 |
| 31 | <i>Sunday.</i> | | | | | | | |

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta, in the
month of July, 1853—(Continued.)*

| Date. | Max. Solar radiation. | Rain. | Prevailing direction of the Wind. | General aspect of the Sky. |
|-------|-----------------------|---------|-----------------------------------|--|
| 1 | 104.0 | Inc. .. | S. E. or E. S. E. | Cloudy with occasional drizzling. Cloudless from 9 P. M. to 11 P. M. |
| 2 | 102.2 | 0.75 | S. E. or S. | Cloudless till 1 A. M. Cloudy and occasionally raining. |
| 3 | <i>Sunday.</i> | | | |
| 4 | 106.0 | 0.52 | S. or S. E. | Cloudy with occasional drizzling. Cloudless from 8 P. M. to 11 P. M. |
| 5 | 115.0 | .. | Ditto. | Cloudy with little thundering and drizzling at 1 P. M. |
| 6 | 112.0 | .. | N. E. or S. E. | Nearly cloudy the whole day. |
| 7 | .... | 0.88 | S. | Overcast or cloudy and constantly drizzling. |
| 8 | .... | .. | Ditto. | Overcast or cloudy. [rise. |
| 9 | .... | 0.44 | S. or calm. | Overcast with constant drizzling before sun. |
| 10 | <i>Sunday.</i> | | | |
| 11 | .... | 0.24 | Calm or N. E. | Overcast with occasional drizzling. |
| 12 | .... | 0.19 | S. E. | Cloudy and also raining between 12 & 2 P. M. |
| 13 | .... | 1.34 | N. E. | Cloudy and constantly drizzling. |
| 14 | .... | .. | S. E. or S. W. | Scattered \i or \i or \i till 6 P. M. overcast with rain and drizzling afterwards. |
| 15 | .... | 1.09 | Calm or N. N. E. or [N. | Cloudy and raining between 5 & 6 P. M. |
| 16 | .... | 0.46 | E. | Cloudy with occasional drizzling also overcast and raining at 5 & 10 A. M. |
| 17 | <i>Sunday.</i> | | | |
| 18 | .... | 0.36 | E. or S. | Cloudy. |
| 19 | .... | 0.08 | E. or S. S. E. | Cloudy with occasional drizzling. |
| 20 | .... | .. | E. or N. E. or S. E. | Cloudy or scattered \i or \i or \i. |
| 21 | .... | .. | E. or N. E. | Scattered \i till 5 A. M. Cloudy afterwards, also drizzling at 1 P. M. |
| 22 | .... | .. | N. N. E. or N. E. | Cloudy and also rain between 8 & 10 P. M. |
| 23 | .... | 0.42 | S. S. E. or S. | Cloudy and constantly raining. |
| 24 | <i>Sunday.</i> | | | |
| 25 | .... | .. | S. or S. W. or S. E. | Scattered \i till 7 A. M. Cloudy afterwards. |
| 26 | .... | 1.47 | S. E. or S. W. | Cloudy and constantly raining or drizzling. |
| 27 | .... | 1.49 | S. E. or S. W. or N. W. or calm. | Scattered \i or cloudy with occasional drizzling before sunrise also rain at 2 P. M. |
| 28 | .... | .. | Calm or S. W. or S. | Cloudy and also drizzling at midnight and 3 P. M. and raining at 11 P. M. |
| 29 | .... | .. | Calm or S. W. | Cloudy and drizzling at 4 & 8 P. M. |
| 30 | | 0.11 | S. W. or S. | Scattered \i or \i or \i till 5 A. M. Cloudy with occasional drizzling afterwards. |
| 31 | <i>Sunday.</i> | | | |

1853.]

Meteorological Observations.

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*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta, in the
month of August, 1853.*

Latitude 22° 33' 1" North. Longitude 88° 20' 34" East.

| Date. | Mean Height of the Barometer at 32° Fahr. | Range of the Barometer. | | | Mean Dry Bulb Thermometer. | Range of the Tem- perature. | | |
|-------|---|-------------------------|---------|---------|-------------------------------|--------------------------------|------|-------|
| | | Max. | Min. | Diff. | | Max. | Min. | Diff. |
| | Inches. | Inches. | Inches. | Inches. | o | o | o | o |
| 1 | 29.571 | 29.618 | 29.514 | 0.104 | 83.5 | 88.7 | 75.9 | 12.8 |
| 2 | .591 | .614 | .528 | .116 | 83.4 | 92.1 | 75.9 | 16.2 |
| 3 | .611 | .659 | .557 | .102 | 86.3 | 92.7 | 75.8 | 16.9 |
| 4 | .611 | .663 | .559 | .104 | 85.4 | 92.0 | 78.2 | 13.8 |
| 5 | .610 | .660 | .546 | .114 | 83.8 | 90.0 | 78.0 | 12.0 |
| 6 | .574 | .626 | .514 | .112 | 83.5 | 87.8 | 74.5 | 13.3 |
| 7 | <i>Sunday.</i> | | | | | | | |
| 8 | .583 | .640 | .527 | .113 | 81.5 | 83.1 | 77.3 | 5.8 |
| 9 | .616 | .668 | .561 | .107 | 82.9 | 90.0 | 75.9 | 14.1 |
| 10 | .645 | .698 | .597 | .101 | 83.8 | 90.0 | 77.0 | 13.0 |
| 11 | .706 | .779 | .659 | .120 | 81.7 | 83.6 | 76.9 | 6.7 |
| 12 | .763 | .817 | .703 | .114 | 83.2 | 88.0 | 75.5 | 12.5 |
| 13 | .720 | .793 | .647 | .146 | 85.1 | 90.5 | 76.9 | 13.6 |
| 14 | <i>Sunday.</i> | | | | | | | |
| 15 | .632 | .682 | .558 | .124 | 80.5 | 86.0 | 74.0 | 12.0 |
| 16 | .659 | .734 | .608 | .126 | 81.8 | 86.0 | 75.5 | 10.5 |
| 17 | .740 | .791 | .692 | .099 | 81.3 | 85.3 | 75.0 | 10.3 |
| 18 | .761 | .839 | .683 | .156 | 83.5 | 89.5 | 73.3 | 16.2 |
| 19 | .669 | .741 | .574 | .167 | 85.5 | 92.2 | 77.5 | 14.7 |
| 20 | .578 | .641 | .506 | .135 | 84.9 | 90.7 | 79.0 | 11.7 |
| 21 | <i>Sunday.</i> | | | | | | | |
| 22 | .570 | .611 | .510 | .101 | 83.5 | 90.0 | 76.7 | 13.3 |
| 23 | .586 | .650 | .541 | .109 | 82.4 | 88.5 | 76.4 | 12.1 |
| 24 | .642 | .697 | .595 | .102 | 84.4 | 90.4 | 76.3 | 14.1 |
| 25 | .659 | .710 | .599 | .111 | 83.3 | 87.0 | 77.9 | 9.1 |
| 26 | .605 | .653 | .540 | .113 | 83.0 | 87.0 | 77.2 | 9.8 |
| 27 | .575 | .632 | .514 | .118 | 80.6 | 82.8 | 75.0 | 7.8 |
| 28 | <i>Sunday.</i> | | | | | | | |
| 29 | .613 | .669 | .559 | .110 | 83.9 | 89.7 | 75.2 | 14.5 |
| 30 | .623 | .693 | .541 | .152 | 84.4 | 89.5 | 77.0 | 12.5 |
| 31 | .620 | .673 | .547 | .126 | 84.7 | 89.2 | 77.2 | 12.0 |

*Report of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta, in the
month of August, 1853—Continued.*

| Date. | Mean Wet Bulb Thermo- meter. | Dry Bulb above Wet. | Computed Dew Point. | Dry Bulb above Dew Point. | Mean Elastic force of Vapour. | Mean Weight of Vapour in a cubic foot of air. | Additional Weight of va- pour required for com- plete saturation. | Mean degree of Humidi- ty complete saturation being unity. |
|-------|---------------------------------|---------------------|---------------------|------------------------------|----------------------------------|--|---|--|
| | o | o | o | o | Inches. | T. gr. | T. gr. | |
| 1 | 79.9 | 3.6 | 78.6 | 4.9 | 0.958 | 10.28 | 1.72 | .857 |
| 2 | 80.1 | 3.3 | 78.9 | 4.5 | 0.968 | 10.37 | 1.59 | .867 |
| 3 | 81.5 | 4.8 | 79.8 | 6.5 | 0.996 | 10.60 | 2.42 | .814 |
| 4 | 81.4 | 4.0 | 80.0 | 5.4 | 1.002 | 10.70 | 1.98 | .844 |
| 5 | 80.7 | 3.1 | 79.6 | 4.2 | 0.989 | 10.60 | 1.50 | .876 |
| 6 | 80.7 | 2.8 | 79.7 | 3.8 | 0.993 | 10.63 | 1.37 | .886 |
| 7 | <i>Sunday.</i> | | | | | | | |
| 8 | 79.2 | 2.3 | 78.3 | 3.2 | 0.950 | 10.22 | 1.09 | .904 |
| 9 | 80.2 | 2.7 | 79.3 | 3.6 | 0.978 | 10.51 | 1.28 | .891 |
| 10 | 80.6 | 3.2 | 79.5 | 4.3 | 0.985 | 10.57 | 1.53 | .874 |
| 11 | 79.4 | 2.3 | 78.6 | 3.1 | 0.957 | 10.32 | 1.05 | .903 |
| 12 | 80.5 | 2.7 | 79.5 | 3.7 | 0.987 | 10.57 | 1.32 | .889 |
| 13 | 81.1 | 4.0 | 79.7 | 5.4 | 0.992 | 10.61 | 1.96 | .844 |
| 14 | <i>Sunday.</i> | | | | | | | |
| 15 | 78.4 | 2.1 | 77.6 | 2.9 | 0.928 | 10.01 | 0.97 | .912 |
| 16 | 79.5 | 2.3 | 78.7 | 3.1 | 0.960 | 10.35 | 1.05 | .908 |
| 17 | 79.4 | 1.9 | 78.7 | 2.6 | 0.962 | 10.35 | 0.89 | .921 |
| 18 | 80.3 | 3.2 | 79.2 | 4.3 | 0.975 | 10.48 | 1.52 | .873 |
| 19 | 81.7 | 3.8 | 80.4 | 5.1 | 1.014 | 10.83 | 1.89 | .851 |
| 20 | 81.8 | 3.1 | 80.7 | 4.2 | 1.025 | 10.95 | 1.54 | .877 |
| 21 | <i>Sunday.</i> | | | | | | | |
| 22 | 80.3 | 3.2 | 79.2 | 4.3 | 0.975 | 10.48 | 1.52 | .873 |
| 23 | 80.3 | 2.1 | 79.5 | 2.9 | 0.937 | 10.60 | 1.01 | .913 |
| 24 | 80.8 | 3.6 | 79.5 | 4.9 | 0.987 | 10.55 | 1.76 | .857 |
| 25 | 81.0 | 2.3 | 80.2 | 3.1 | 1.008 | 10.81 | 1.12 | .906 |
| 26 | 80.5 | 2.5 | 79.6 | 3.4 | 0.989 | 10.63 | 1.19 | .899 |
| 27 | 79.3 | 1.3 | 78.8 | 1.8 | 0.964 | 10.40 | 0.61 | .945 |
| 28 | <i>Sunday.</i> | | | | | | | |
| 29 | 80.9 | 3.0 | 79.8 | 4.1 | 0.996 | 10.66 | 1.47 | .879 |
| 30 | 80.8 | 3.6 | 79.5 | 4.9 | 0.987 | 10.55 | 1.76 | .857 |
| 31 | 80.9 | 3.8 | 79.5 | 5.2 | 0.987 | 10.55 | 1.87 | .849 |

1853.]

Meteorological Observations.

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*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta, in the
month of August, 1853—(Continued.)*

| Date. | Max. Solar radiation. | Rain. | Prevailing direction of the Wind. | General aspect of the Sky. |
|-------|-----------------------|-------|---------------------------------------|---|
| | 0 | Inc. | | |
| 1 | .... | .. | S. E. or S. W. or W. or calm. | Cloudy. |
| 2 | .... | .. | Calm or N. E. or W. S. W. or S. or N. | Overcast with rain. [or \cap i till 7 P. M. Cloudless afterwards. |
| 3 | .... | 0.30 | Calm or W. or S. | Cloudy till 8 A. M. Scattered \searrow i or \swarrow i |
| 4 | .... | .. | N. or W. | Cloudless till 2 A. M. Cloudy or scattered \cap i afterwards also raining at 7 P. M. |
| 5 | .... | .. | Calm or S. W. | Cloudy and also drizzling from 4 P. M. to 6 P. M. [4 A. M. |
| 6 | .... | 0.75 | Calm or S. or S. E. | Cloudy and also drizzling or raining till [till whole day. |
| 7 | Sunday. | 0.46 | S. E. or calm or N. W. | Cloudy or overcast also raining or drizzling |
| 8 | .... | 0.23 | Calm or S. W. or W. or S. E. | Cloudy and also drizzling till 6 A. M. [zling occasionally. |
| 9 | .... | 0.68 | S. E. | Cloudy or scattered \searrow i or \cap i also driz. |
| 10 | .... | 0.29 | S. E. or S. | Cloudy and constantly drizzling, also smart shower of rain between 8 & 9 A. M. and 8 & 9 P. M. |
| 11 | .... | 0.25 | S. | Cloudy and occasionally drizzling. |
| 12 | .... | .. | Calm or S. | Cloudless till 7 A. M. Scattered \cap i or \searrow i afterwards. [zling. |
| 13 | Sunday. | 5.50 | S. or S. E. or N. W. | Overcast or cloudy with constantly driz. |
| 14 | .... | 0.41 | S. or calm. | Overcast or cloudy with constantly drizzling, also a shower of rain from 6 to 8 A. M. |
| 15 | .... | 0.23 | S. or S. E. blowing | Overcast or cloudy with constant drizzling. |
| 16 | .... | 0.34 | S. E. or S. | Scattered \searrow i or \cap i or cloudy with constant |
| 17 | .... | .. | S. | Scattered \searrow i or \swarrow i or \cap i. [drizzling. |
| 18 | .... | 110.0 | S. or S. W. | Scattered \searrow i till 3 P. M. Cloudy with drizzling afterwards and a shower of rain between 4 & 5 P. M. [7½ P. M. |
| 19 | Sunday. | 0.35 | S. E. | Cloudy and also raining at 10 A. M. and |
| 20 | 95.5 | 0.60 | S. E. or E. | Scattered \searrow i or \swarrow i or \swarrow i till noon, cloudy and raining and thundering afterwards. |
| 21 | 109.0 | 0.75 | E. or S. E. | Scattered \searrow i or \swarrow i. |
| 22 | 106.2 | 0.32 | S. or E. or S. S. E. | Scattered \searrow i or \swarrow i or \swarrow i till 10 A. M. Cloudy with occasional drizzling afterwards, a shower of rain between 9 & 10 A. M. |
| 23 | 105.0 | .. | S. E. | Cloudy and drizzling occasionally. |
| 24 | .... | 1.75 | S. E. or Calm. | Cloudy and constantly drizzling. |
| 25 | Sunday. | 0.14 | S. E. or E. | Cloudless till 4 A. M. overcast or scattered \cap i till 7 P. M. Cloudless afterwards, also little rain at 3 P. M. |
| 26 | 102.5 | .. | E. or S. E. | Scattered \searrow i or \swarrow i or \cap i or cloudy till 7 A. M. Cloudless afterwards. Also little rain at 1 & 4 P. M. |
| 27 | 104.0 | 0.09 | Ditto. | Cloudless till 2 A. M. Cloudy with little thundg. till 7 P. M. Cloudless afterwards. |

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta, in the
month of September, 1853.*

Latitude 22° 33' 1" North. Longitude 88° 20' 34" East.

| Date. | Mean Height of the Barometer at 32° Fahr. | Range of the Barometer. | | | Mean Dry Bulb Thermometer. | Range of the Tem- perature. | | |
|-------|---|-------------------------|---------|---------|-------------------------------|--------------------------------|------|-------|
| | | Max. | Min. | Diff. | | Max. | Min. | Diff. |
| | Inches. | Inches. | Inches. | Inches. | o | o | o | o |
| 1 | 29.645 | 29.714 | 29.567 | 0.147 | 84.6 | 89.0 | 77.9 | 11.1 |
| 2 | 29.610 | .667 | .530 | .137 | 84.3 | 91.0 | 77.3 | 13.7 |
| 3 | 29.608 | .661 | .555 | .106 | 83.8 | 87.5 | 77.6 | 9.9 |
| 4 | <i>Sunday.</i> | | | | | | | |
| 5 | 29.660 | .720 | .596 | .124 | 84.6 | 88.5 | 78.4 | 10.1 |
| 6 | 29.596 | .645 | .533 | .112 | 84.5 | 88.0 | 79.4 | 8.6 |
| 7 | 29.574 | .632 | .511 | .121 | 84.8 | 88.4 | 79.5 | 8.9 |
| 8 | 29.585 | .649 | .523 | .126 | 80.0 | 82.0 | 75.8 | 6.2 |
| 9 | 29.636 | .694 | .570 | .124 | 81.0 | 84.6 | 75.6 | 9.0 |
| 10 | 29.614 | .672 | .535 | .137 | 83.8 | 89.4 | 75.0 | 14.4 |
| 11 | <i>Sunday.</i> | | | | | | | |
| 12 | 29.606 | .666 | .544 | .122 | 84.3 | 89.2 | 77.0 | 12.2 |
| 13 | 29.637 | .698 | .588 | .110 | 85.8 | 92.0 | 77.5 | 14.5 |
| 14 | 29.695 | .748 | .646 | .102 | 86.1 | 91.7 | 77.9 | 13.8 |
| 15 | 29.721 | .783 | .654 | .129 | 86.6 | 92.0 | 83.0 | 9.0 |
| 16 | 29.721 | .789 | .638 | .151 | 86.7 | 92.6 | 79.4 | 13.2 |
| 17 | 29.734 | .798 | .646 | .152 | 85.1 | 93.4 | .. | .. |
| 18 | <i>Sunday.</i> | | | | | | | |
| 19 | 29.758 | .804 | .674 | .130 | 82.4 | 86.3 | 73.6 | 12.7 |
| 20 | 29.750 | .817 | .665 | .152 | 84.5 | 91.0 | 76.2 | 14.8 |
| 21 | 29.718 | .788 | .642 | .146 | 86.1 | 92.9 | 77.5 | 15.4 |
| 22 | 29.697 | .760 | .628 | .132 | 87.4 | 93.5 | 79.6 | 13.9 |
| 23 | 29.691 | .762 | .615 | .147 | 87.1 | 93.0 | 79.8 | 13.2 |
| 24 | 29.671 | .726 | .606 | .120 | 86.0 | 91.3 | 79.9 | 11.4 |
| 25 | <i>Sunday.</i> | | | | | | | |
| 26 | 29.605 | .668 | .534 | .134 | 80.1 | 86.0 | 74.9 | 11.1 |
| 27 | 29.564 | .608 | .517 | .091 | 78.8 | 79.9 | 73.8 | 6.1 |
| 28 | 29.600 | .662 | .536 | .126 | 79.8 | 84.0 | 74.3 | 9.7 |
| 29 | 29.661 | .730 | .610 | .120 | 82.5 | 88.0 | 74.0 | 14.0 |
| 30 | 29.693 | .762 | .630 | .132 | 84.3 | 90.0 | 75.9 | 14.1 |

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta, in the
month of September, 1853—(Continued.)*

| Date. | Mean Wet Bulb Ther- mometer. | Dry Bulb above Wet. | Computed Dew Point. | Dry Bulb above Dew Point. | Mean Elastic force of Vapour. | Mean Weight of Vapour in a cubic foot of air. | Additional weight of Va- pour required for com- plete saturation. | Mean degree of Humi- dity complete satura- tion being unity. |
|-------|---------------------------------|---------------------|---------------------|------------------------------|----------------------------------|--|---|--|
| | o | o | o | o | Inches. | T. gr. | T. gr. | |
| 1 | 81.1 | 3.5 | 79.9 | 4.7 | 0.998 | 10.67 | 1.72 | 0.861 |
| 2 | 80.9 | 3.4 | 79.7 | 4.6 | 0.992 | 10.61 | 1.67 | .864 |
| 3 | 81.1 | 2.7 | 80.2 | 3.6 | 1.007 | 10.79 | 1.31 | .892 |
| 4 | <i>Sunday.</i> | | | | | | | |
| 5 | 81.9 | 2.7 | 81.0 | 3.6 | 1.033 | 11.05 | 1.34 | .892 |
| 6 | 82.1 | 2.4 | 81.3 | 3.2 | 1.042 | 11.17 | 1.18 | .904 |
| 7 | 81.8 | 3.0 | 80.8 | 4.0 | 1.026 | 10.98 | 1.48 | .881 |
| 8 | 78.5 | 1.5 | 77.9 | 2.1 | 0.938 | 10.12 | 0.69 | .936 |
| 9 | 79.1 | 1.9 | 78.4 | 2.6 | 0.952 | 10.25 | 0.89 | .920 |
| 10 | 79.8 | 4.0 | 78.3 | 5.5 | 0.950 | 10.16 | 1.94 | .840 |
| 11 | <i>Sunday.</i> | | | | | | | |
| 12 | 80.1 | 4.2 | 78.6 | 5.7 | 0.958 | 10.26 | 2.02 | .836 |
| 13 | 80.3 | 5.5 | 78.3 | 7.5 | 0.949 | 10.12 | 2.71 | .789 |
| 14 | 81.8 | 4.3 | 80.3 | 5.8 | 1.012 | 10.78 | 2.17 | .832 |
| 15 | 82.6 | 4.0 | 81.3 | 5.3 | 1.012 | 11.13 | 2.01 | .847 |
| 16 | 82.4 | 4.3 | 81.0 | 5.7 | 1.032 | 11.01 | 2.17 | .835 |
| 17 | 80.8 | 4.3 | 79.3 | 5.8 | 0.979 | 10.46 | 2.11 | .832 |
| 18 | <i>Sunday.</i> | | | | | | | |
| 19 | 79.7 | 2.7 | 78.7 | 3.7 | 0.962 | 10.33 | 1.28 | .890 |
| 20 | 80.4 | 4.1 | 78.9 | 5.6 | 0.968 | 10.34 | 2.01 | .837 |
| 21 | 81.4 | 4.7 | 79.8 | 6.3 | 0.994 | 10.62 | 2.33 | .820 |
| 22 | 82.1 | 5.3 | 80.2 | 7.2 | 1.009 | 10.73 | 2.72 | .798 |
| 23 | 81.6 | 5.5 | 79.7 | 7.4 | 0.991 | 10.57 | 2.76 | .793 |
| 24 | 81.0 | 5.0 | 79.3 | 6.7 | 0.978 | 10.44 | 2.47 | .809 |
| 25 | <i>Sunday.</i> | | | | | | | |
| 26 | 78.5 | 1.6 | 77.9 | 2.2 | 0.937 | 10.12 | 0.72 | .934 |
| 27 | 78.0 | 0.8 | 77.7 | 1.1 | 0.931 | 10.09 | 0.35 | .966 |
| 28 | 78.2 | 1.6 | 77.6 | 2.2 | 0.928 | 10.03 | 0.72 | .933 |
| 29 | 79.2 | 3.3 | 78.0 | 4.5 | 0.939 | 10.09 | 1.55 | .867 |
| 30 | 80.2 | 4.1 | 78.7 | 5.6 | 0.962 | 10.29 | 1.99 | .838 |

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta, in the
month of September, 1853—(Continued.)*

| Date. | Max. Solar radiation | Rain. | Prevailing direction of the Wind. | General aspect of the Sky. |
|-------|----------------------|-------|------------------------------------|--|
| | o | Inc. | | |
| 1 | 107.0 | .. | S. E. or E. or N. E. | Cloudless till 3 A. M. scattered \cap i and \cup i till 9 P. M. Cloudless afterwards. |
| 2 | 111.0 | .. | E. or N. E. or S. E. | Cloudless till 2 A. M. scattered \cap i or \cup i or \cap i till 2 P. M. cloudy and rainy till 8 P. M. Cloudless afterwards. |
| 3 | 101.0 | 0.41 | E or S. E. | Cloudy, raining occasionally till 7. P. M. Cloudless afterwards. |
| 4 | Sunday. | | | |
| 5 | 105.8 | 0.36 | Calm or S. | Cloudy. |
| 6 | .. | .. | Calm or S. | Ditto [6 P. M. and raining at 11 P. M. |
| 7 | .. | .. | S. sharp at 3 A. M. | Overcast or cloudy, also drizzling at 5 and |
| 8 | .. | 1.92 | S. or S. W. | Overcast, raining or drizzling, nearly the whole day. |
| 9 | .. | .. | S. or calm. | Overcast and also drizzling till 8 A. M. also a shower of rain between 5 and 6 P. M. |
| 10 | 98.0 | 0.47 | S. or S. W. or W. | Cloudy. |
| 11 | Sunday. | | | |
| 12 | .. | .. | W. or S. | Cloudy. |
| 13 | 105.0 | .. | S. or W. or calm. | Cloudy. |
| 14 | 104.3 | .. | S. W. or calm. | Cloudy. |
| 15 | 111.8 | .. | S. or S. S. W. | Cloudy or scattered \cap i and \cup i. |
| 16 | 107.0 | .. | S. | Scattered \cup i or \cap i or \cup i or overcast. |
| 17 | 108.0 | .. | S. or S. W. | Overcast or cloudy; also raining or drizzling after 8 P. M. |
| 18 | Sunday. | 0.70 | | |
| 19 | 104.4 | 0.95 | Calm or S. | Overcast or cloudy also raining between 2 |
| 20 | 101.0 | .. | S. or W. or calm. | Cloudy or scattered \cap i or \cup i, [and 3 P. M. |
| 21 | 117.5 | .. | S. W. or N. W. or W. or calm. | Cloudless or scattered \cap i. |
| 22 | 102.0 | .. | Calm or N. W. | Cloudless till 3 A. M. afterwards scattered \cup i or \cap i or \cup i or cloudy. |
| 23 | 102.2 | .. | Calm or N. E. or N. W. | Scattered \cap i till 7 A. M. cloudy or scattered \cap i, afterwards also drizzling at 5 P. M. |
| 24 | 113.5 | .. | Calm or S. or N. E. or E. or S. E. | Scattered \cap i or \cup i or \cup i or \cap i. |
| 25 | Sunday. | | | |
| 26 | .. | 1.42 | N. E. or E. N. E. | Overcast and drizzling or raining. |
| 27 | .. | 1.85 | E. | Overcast and drizzling or raining. |
| 28 | .. | 0.70 | E. | Overcast and raining or drizzling |
| 29 | 96.0 | 0.37 | E. or S. E. or S. | Cloudy or scattered \cap i also raining at 1 A. M. afterwards occasionally drizzling. |
| 30 | 107.4 | .. | S. E. or E. | Cloudless, or scattered \cap i or \cup i or \cap i. |

\cap i Cirri, \cap i Cumuli, — i Strati, \cup i Cirro cumulo, \cup i Cirro strati, \cap i Cumulo strati, \cup i Nimbi.

1853.]

Meteorological Observations.

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*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta, in the
month of October, 1853.*

Latitude 22° 33' 1" North. Longitude 88° 20' 34" East.

| Date. | Mean Height of the Barometer at 32° Fahr. | Range of the Barometer. | | | Mean Dry Bulb Thermometer. | Range of the Tem- perature. | | |
|-------|---|-------------------------|---------|---------|-------------------------------|--------------------------------|------|-------|
| | | Max. | Min. | Diff. | | Max. | Min. | Diff. |
| | Inches. | Inches. | Inches. | Inches. | ° | ° | ° | ° |
| 1 | 29.682 | 29.751 | 29.619 | 0.132 | 83.8 | 87.3 | 77.5 | 9.8 |
| 2 | <i>Sunday.</i> | | | | | | | |
| 3 | .672 | .737 | .604 | .133 | 84.3 | 90.0 | 73.9 | 16.1 |
| 4 | .665 | .717 | .594 | .123 | 83.3 | 87.5 | 77.2 | 10.3 |
| 5 | .711 | .777 | .634 | .143 | 78.4 | 79.8 | 73.2 | 6.6 |
| 6 | .771 | .831 | .716 | .115 | 80.0 | 86.5 | 73.0 | 13.5 |
| 7 | .850 | .913 | .795 | .118 | 79.6 | 83.0 | 71.0 | 9.0 |
| 8 | .909 | .979 | .853 | .126 | 82.8 | 88.1 | 74.6 | 13.5 |
| 9 | <i>Sunday.</i> | | | | | | | |
| 10 | .872 | .934 | .816 | .118 | 85.1 | 90.7 | 77.4 | 13.3 |
| 11 | .857 | .916 | .805 | .111 | 82.8 | 88.0 | 75.0 | 13.0 |
| 12 | .851 | .923 | .800 | .123 | 81.4 | 87.1 | 71.9 | 15.5 |
| 13 | .849 | .915 | .788 | .127 | 82.1 | 88.9 | 73.6 | 15.3 |
| 14 | .873 | .942 | .829 | .113 | 82.6 | 88.6 | 73.3 | 15.3 |
| 15 | .901 | .977 | .855 | .122 | 82.1 | 88.4 | 73.4 | 15.0 |
| 16 | <i>Sunday.</i> | | | | | | | |
| 17 | .914 | .979 | .868 | .111 | 81.3 | 85.0 | 73.5 | 11.5 |
| 18 | .879 | .930 | .836 | .094 | 81.2 | 84.6 | 76.0 | 8.6 |
| 19 | .853 | .914 | .794 | .120 | 81.7 | 87.4 | 73.2 | 14.2 |
| 20 | .867 | .933 | .818 | .115 | 81.6 | 86.3 | 73.9 | 12.4 |
| 21 | .873 | .947 | .820 | .127 | 79.2 | 83.3 | 70.0 | 13.3 |
| 22 | .846 | .904 | .801 | .103 | 79.2 | 84.4 | 72.0 | 12.4 |
| 23 | <i>Sunday.</i> | | | | | | | |
| 24 | .935 | 30.005 | .880 | .125 | 80.1 | 87.0 | 70.2 | 16.8 |
| 25 | .926 | 29.998 | .863 | .135 | 79.4 | 85.5 | 70.0 | 15.5 |
| 26 | .940 | 30.011 | .884 | .127 | 79.1 | 84.8 | 70.0 | 14.8 |
| 27 | 30.015 | .103 | .967 | .136 | 79.8 | 86.6 | 70.0 | 16.6 |
| 28 | .026 | .100 | .969 | .131 | 80.4 | 86.5 | 71.7 | 14.8 |
| 29 | 29.999 | .082 | .936 | .146 | 79.9 | 86.6 | 70.0 | 16.6 |
| 30 | <i>Sunday.</i> | | | | | | | |
| 31 | .983 | .057 | .929 | .128 | 78.2 | 86.2 | 67.5 | 18.7 |

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta, in the
month of October, 1853—(Continued.)*

| Date. | Mean Wet Bulb Ther- mometer. | Dry Bulb above Wet. | Computed Dew Point. | Dry Bulb above Dew Point. | Mean Elastic force of Vapour. | Mean Weight of Vapour in a cubic foot of air. | Additional weight of Va- pour required for com- plete saturation. | Mean degree of Humi- dity, complete satura- tion being unity. |
|-------|---------------------------------|---------------------|---------------------|------------------------------|----------------------------------|--|---|---|
| 1 | 80.2 | 3.6 | 78.9 | 4.9 | Inches. 0.967 | T. gr. 10.37 | T. gr. 1.73 | 0.837 |
| 2 | <i>Sunday.</i> | | | | | | | |
| 3 | 80.2 | 4.1 | 78.7 | 5.6 | 0.962 | 10.29 | 1.99 | .838 |
| 4 | 79.4 | 3.9 | 78.0 | 5.3 | 0.939 | 10.09 | 1.84 | .846 |
| 5 | 76.4 | 2.0 | 75.6 | 2.8 | 0.870 | 9.42 | 0.89 | .914 |
| 6 | 77.5 | 2.5 | 76.5 | 3.5 | 0.897 | 9.67 | 1.14 | .895 |
| 7 | 78.3 | 1.3 | 77.8 | 1.8 | 0.934 | 10.09 | 0.60 | .944 |
| 8 | 80.0 | 2.8 | 79.0 | 3.8 | 0.969 | 10.42 | 1.33 | .887 |
| 9 | <i>Sunday.</i> | | | | | | | |
| 10 | 80.8 | 4.3 | 79.3 | 5.8 | 0.978 | 10.46 | 2.11 | .832 |
| 11 | 76.8 | 6.0 | 74.4 | 8.4 | 0.837 | 9.00 | 2.75 | .766 |
| 12 | 75.5 | 5.9 | 73.0 | 8.4 | 0.801 | 8.62 | 2.65 | .765 |
| 13 | 76.6 | 5.5 | 74.4 | 7.7 | 0.837 | 9.00 | 2.51 | .782 |
| 14 | 76.2 | 6.4 | 73.5 | 9.1 | 0.815 | 8.74 | 2.94 | .748 |
| 15 | 75.7 | 6.4 | 73.0 | 9.1 | 0.801 | 8.60 | 2.91 | .747 |
| 16 | <i>Sunday.</i> | | | | | | | |
| 17 | 75.9 | 5.4 | 73.7 | 7.6 | 0.818 | 8.82 | 2.42 | .785 |
| 18 | 77.8 | 3.4 | 76.5 | 4.7 | 0.895 | 9.65 | 1.56 | .861 |
| 19 | 77.7 | 4.0 | 76.2 | 5.5 | 0.886 | 9.54 | 1.83 | .839 |
| 20 | 76.1 | 5.5 | 73.9 | 7.7 | 0.823 | 8.87 | 2.47 | .782 |
| 21 | 73.1 | 6.1 | 70.3 | 8.9 | 0.734 | 7.93 | 2.63 | .751 |
| 22 | 73.2 | 6.0 | 70.5 | 8.7 | 0.738 | 7.98 | 2.58 | .756 |
| 23 | <i>Sunday.</i> | | | | | | | |
| 24 | 73.4 | 6.7 | 70.4 | 9.7 | 0.735 | 7.94 | 2.90 | .732 |
| 25 | 73.1 | 6.3 | 70.2 | 9.2 | 0.732 | 7.91 | 2.71 | .745 |
| 26 | 72.3 | 6.8 | 69.1 | 10.0 | 0.706 | 7.62 | 2.91 | .724 |
| 27 | 73.2 | 6.6 | 70.2 | 9.6 | 0.731 | 7.89 | 2.86 | .734 |
| 28 | 73.8 | 6.6 | 70.9 | 9.5 | 0.747 | 8.07 | 2.87 | .738 |
| 29 | 71.8 | 8.1 | 67.9 | 12.0 | 0.679 | 7.33 | 3.45 | .680 |
| 30 | <i>Sunday.</i> | | | | | | | |
| 31 | 71.5 | 6.7 | 68.3 | 9.9 | 0.687 | 7.45 | 2.80 | .727 |

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta, in the
month of October, 1853—(Continued.)*

| Date. | Max. Solar radiation. | Rain. | Prevailing direction of the Wind. | General aspect of the Sky. |
|-------|-----------------------|---------|-----------------------------------|--|
| 1 | 91.0 | Inc. .. | Calm or S. W. | Cloudy also drizzling between 7 and 11 p. m. |
| 2 | <i>Sunday.</i> | 0.90 | | |
| 3 | 112.0 | .. | E. or N. E. | Cloudless till 6 A. M. scattered \cap i or cloudy afterwards and also much lightning on S. W. side between 6 and 9 p. m. |
| 4 | 97.8 | 0.08 | E. | Scattered \searrow i or \swarrow i or \cap i also overcast and raining at 11 p. m. |
| 5 | .... | 0.76 | E. or N. E. or S. | Cloudy and occasionally raining. |
| 6 | .... | 0.12 | E. or S. | Cloudy or overcast, raining occasionally. |
| 7 | .... | 0.66 | E. or N. E. or S. E. | Ditto. |
| 8 | 101.8 | .. | Calm or E. or S. W. | Cloudy or scattered \cap i or \searrow i or \swarrow i. |
| 9 | <i>Sunday.</i> | | | |
| 10 | 110.5 | .. | Calm or S. S. W. | Cloudless till 7 A. M. scattered \cap i till 5 p. m. and cloudless afterwards. |
| 11 | 106.0 | .. | Calm or N. W. | Cloudless. |
| 12 | 108.5 | .. | Calm or W. | Cloudless till 11 A. M. scattered \cap i till 6 p. m. and cloudless afterwards. |
| 13 | 101.8 | .. | Calm or N. W. | Cloudless till 8 A. M. scattered \cap i till 5 p. m. and cloudless afterwards. |
| 14 | 109.7 | .. | Ditto. | Cloudless. |
| 15 | 105.0 | .. | Ditto. | Cloudless till 7 A. M. scattered \searrow i afterwards. |
| 16 | <i>Sunday</i> | | | |
| 17 | .... | .. | N. W. or N. | Scattered \searrow i or cloudy. |
| 18 | 94.0 | 2.42 | Calm or N. or S. E. | Cloudy, also raining at 7 p. m. |
| 19 | 106.0 | .. | N. W. | Scattered \searrow i or \swarrow i or \cap i. |
| 20 | 102.0 | .. | Ditto. | Cloudless till 6 A. M. scattered \searrow i or \swarrow i till 6 p. m. cloudless afterwards. |
| 21 | 98.0 | .. | N. or N. W. | Scattered \searrow i till 8 A. M. cloudy afterwards. |
| 22 | 97.0 | .. | N. W. | Cloudy. |
| 23 | <i>Sunday.</i> | | | |
| 24 | 101.0 | .. | Calm or N. W. or W. | Scattered \cap i or \searrow i or cloudless. |
| 25 | 100.0 | .. | Calm or W. | Scattered \cap i or \searrow i till 4 p. m. cloudless afterwards. |
| 26 | 105.9 | .. | W. | Scattered \searrow i or cloudless. |
| 27 | 113.0 | .. | Calm or E. or S. W. | Cloudless till 6 A. M. scattered \cap i afterwards. |
| 28 | 111.5 | .. | Calm or E. or N. E. | Scattered \searrow i or \cap i. |
| 29 | 103.0 | .. | W. or N. W. [or N. | Scattered \searrow i or \cap i. |
| 30 | <i>Sunday.</i> | | | |
| 31 | 109.0 | .. | Calm or N. W. | Cloudless. |

Meteorological Observations.

[No. 7.]

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta, in the
month of November, 1853.*

Latitude 22° 33' 1" North. Longitude 88° 20' 34" East.

| Date. | Mean Height of the Barometer at 32° Fahr. | Range of the Barometer. | | | Mean Dry Bulb Thermometer. | Range of the Tem- perature. | | |
|-------|---|-------------------------|---------|---------|-------------------------------|--------------------------------|------|-------|
| | | Max. | Min. | Diff. | | Max. | Min. | Diff. |
| | Inches. | Inches. | Inches. | Inches. | ° | ° | ° | ° |
| 1 | 29.958 | 30.032 | 29.892 | 0.140 | 78.1 | 86.2 | 68.0 | 18.2 |
| 2 | .900 | 29.980 | .830 | .150 | 78.6 | 86.2 | 68.3 | 17.9 |
| 3 | .867 | .947 | .820 | .127 | 78.7 | 86.0 | 68.4 | 17.6 |
| 4 | .848 | .919 | .782 | .137 | 78.7 | 86.9 | 70.5 | 16.4 |
| 5 | .849 | .913 | .800 | .113 | 79.3 | 86.7 | 69.4 | 17.3 |
| 6 | <i>Sunday.</i> | | | | | | | |
| 7 | .885 | .957 | .818 | .139 | 79.2 | 86.2 | 68.6 | 17.6 |
| 8 | .846 | .928 | .790 | .138 | 79.0 | 86.6 | 69.4 | 17.2 |
| 9 | .853 | .912 | .800 | .112 | 79.8 | 87.6 | 72.7 | 14.9 |
| 10 | .910 | .988 | .847 | .141 | 80.1 | 86.9 | 72.6 | 11.3 |
| 11 | .935 | 30.018 | .852 | .166 | 77.3 | 85.5 | 66.7 | 18.8 |
| 12 | .865 | 29.949 | .796 | .153 | 76.6 | 85.6 | 64.9 | 20.7 |
| 13 | <i>Sunday.</i> | | | | | | | |
| 14 | .941 | 30.012 | .886 | .126 | 78.0 | 86.0 | 67.5 | 18.5 |
| 15 | .939 | .030 | .877 | .153 | 77.5 | 86.5 | 67.3 | 19.2 |
| 16 | .868 | 29.946 | .801 | .145 | 77.1 | 86.5 | 66.0 | 20.5 |
| 17 | .903 | .990 | .852 | .138 | 78.4 | 86.7 | 72.8 | 13.9 |
| 18 | .919 | 30.000 | .861 | .139 | 77.9 | 85.4 | 67.8 | 17.6 |
| 19 | .933 | .017 | .882 | .135 | 74.9 | 83.0 | 65.5 | 17.5 |
| 20 | <i>Sunday.</i> | | | | | | | |
| 21 | .963 | .037 | .908 | .129 | 69.1 | 78.0 | 58.0 | 20.0 |
| 22 | .969 | .050 | .902 | .148 | 69.6 | 79.2 | 57.6 | 21.6 |
| 23 | .938 | .026 | .868 | .158 | 70.3 | 80.0 | 58.4 | 21.6 |
| 24 | .934 | 29.997 | .887 | .110 | 71.2 | 80.0 | 60.0 | 20.0 |
| 25 | .935 | 30.015 | .858 | .157 | 71.5 | 80.9 | 59.7 | 21.2 |
| 26 | .918 | 29.991 | .852 | .139 | 71.6 | 80.0 | 60.4 | 19.6 |
| 27 | <i>Sunday.</i> | | | | | | | |
| 28 | .922 | .991 | .868 | .123 | 69.3 | 79.3 | 58.3 | 21.0 |
| 29 | .933 | 30.007 | .868 | .139 | 69.3 | 80.7 | 56.4 | 24.3 |
| 30 | .976 | .065 | .931 | .134 | 70.4 | 81.0 | 57.7 | 23.3 |

1853.]

Meteorological Observations.

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*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta, in the
month of November, 1853—(Continued.)*

| Date. | Mean Wet Bulb Ther- mometer. | Dry Bulb above Wet. | Computed Dew Point. | Dry Bulb above Dew Point. | Mean Elastic force of Vapour. | Mean Weight of Vapour in a cubic foot of air. | Additional weight of Va- pour required for com- plete saturation. | Mean degree of Humi- dity complete satura- tion being unity. |
|-------|---------------------------------|---------------------|---------------------|------------------------------|----------------------------------|--|---|--|
| | ° | ° | ° | ° | Inches. | T. gr. | T. gr. | |
| 1 | 71.3 | 6.8 | 68.0 | 10.1 | 0.681 | 7.38 | 2.84 | 0.722 |
| 2 | 72.3 | 6.3 | 69.4 | 9.2 | 0.712 | 7.72 | 2.66 | .744 |
| 3 | 73.0 | 5.7 | 70.4 | 8.3 | 0.736 | 7.97 | 2.44 | .766 |
| 4 | 73.4 | 5.3 | 71.0 | 7.7 | 0.751 | 8.12 | 2.29 | .780 |
| 5 | 73.1 | 6.2 | 70.3 | 9.0 | 0.733 | 7.93 | 2.66 | .749 |
| 6 | <i>Sunday.</i> | | | | | | | |
| 7 | 73.6 | 5.6 | 71.1 | 8.1 | 0.754 | | | |
| 8 | 73.7 | 5.3 | 71.3 | 7.7 | 0.759 | 8.15 | 2.41 | .772 |
| 9 | 74.5 | 5.3 | 72.2 | 7.6 | 0.780 | 8.20 | 2.30 | .781 |
| 10 | 74.3 | 5.8 | 71.7 | 8.4 | 0.769 | 8.41 | 2.34 | .782 |
| 11 | 68.8 | 8.5 | 64.3 | 13.0 | 0.603 | 8.30 | 2.54 | .766 |
| 12 | 70.4 | 6.2 | 67.3 | 9.3 | 0.666 | 6.55 | 3.43 | .656 |
| 13 | <i>Sunday.</i> | | | | | | | |
| 14 | 72.0 | | | | | 7.24 | 2.53 | .741 |
| 15 | 71.6 | 6.0 | 69.2 | 8.8 | 0.708 | | | |
| 16 | 70.9 | 5.9 | 68.8 | 8.7 | 0.699 | 7.67 | 2.52 | .753 |
| 17 | 71.7 | 6.2 | 67.9 | 9.2 | 0.678 | 7.57 | 2.47 | .754 |
| 18 | 72.0 | 6.7 | 68.5 | 9.9 | 0.692 | 7.37 | 2.55 | .743 |
| 19 | 67.4 | 5.9 | 69.2 | 8.7 | 0.709 | 7.50 | 2.81 | .727 |
| 20 | <i>Sunday.</i> | | | | | | | |
| 21 | 62.3 | 7.5 | 63.3 | 11.6 | 0.583 | 7.67 | 2.49 | .755 |
| 22 | 63.5 | | | | | 6.35 | 2.93 | .685 |
| 23 | 64.4 | 6.8 | 57.9 | 11.2 | 0.488 | | | |
| 24 | 65.8 | 6.1 | 59.8 | 9.8 | 0.519 | 5.37 | 2.41 | .690 |
| 25 | 66.1 | 5.9 | 60.9 | 9.4 | 0.538 | 5.71 | 2.19 | .723 |
| 26 | 66.0 | 5.4 | 62.8 | 8.4 | 0.573 | 5.93 | 2.15 | .734 |
| 27 | <i>Sunday.</i> | | | | | | | |
| 28 | 63.0 | 5.4 | 63.1 | 8.4 | 0.579 | 6.31 | 1.99 | .760 |
| 29 | 63.7 | 5.6 | 60.3 | 9.0 | 0.528 | 6.37 | 2.01 | .760 |
| 30 | 64.3 | 6.1 | 60.6 | 9.8 | 0.534 | 6.31 | 2.09 | .751 |
| | | | | | | 5.60 | 2.23 | .715 |
| | | | | | | 5.82 | 2.01 | .743 |
| | | | | | | 5.86 | 2.24 | .723 |

*Abstract of the Results of the Hourly Meteorological Observations
taken at the Surveyor General's Office, Calcutta, in the
month of November, 1853—(Continued.)*

| Date. | Max. Solar radiation. | Rain. | Prevailing direction of the Wind. | General aspect of the Sky. |
|-------|-----------------------|-------|-----------------------------------|--|
| | o | Inc. | | |
| 1 | 108.0 | .. | Calm or N. W. | Cloudless till noon scattered \searrow i till 4 P. M. cloudless afterwards. |
| 2 | 108.0 | .. | Ditto. | Cloudless till 11 A. M. scattered \cap i or \searrow i till 8 P. M. cloudless afterwards. |
| 3 | 102.0 | .. | N. or N. W. | Cloudless till 5 A. M. scattered \searrow i till 7 P. M. cloudless afterwards. |
| 4 | 103.0 | .. | Calm or N. W. | Cloudless till noon scattered \cap i till 7 P. M. cloudless afterwards. |
| 5 | 108.0 | .. | Calm or W. \searrow | Cloudless till 10 A. M. \searrow i and \cap i till 4 P. M. cloudless afterwards. |
| 6 | Sunday. | | | |
| 7 | 102.0 | .. | Calm or S. W. | Cloudless till 11 A. M. scattered \cap i till 4 P. M. cloudless afterwards. |
| 8 | 102.0 | .. | S. W. | Cloudless. |
| 9 | 105.0 | .. | Ditto. | Ditto. |
| 10 | 104.0 | .. | S. W. or W. | Ditto. |
| 11 | 100.0 | .. | N. E. | Ditto. |
| 12 | 100.8 | .. | N. or E. or S. | Nearly cloudless. |
| 13 | Sunday. | | | |
| 14 | 104.0 | .. | S. W. | Cloudless. |
| 15 | 100.5 | .. | S. | Ditto. |
| 16 | 101.5 | .. | S. W. or S. | Cloudless and occasionally scattered \cap i or \searrow i. |
| 17 | 103.6 | .. | S. | Cloudy till 8 A. M. cloudless till 1 P. M. scattered \cap i till 4 P. M. cloudless afterwards. |
| 18 | 100.5 | .. | Calm or N. E. or W. | Cloudy nearly throughout the day. |
| 19 | 103.0 | .. | N. W. | Nearly cloudless. |
| 20 | Sunday. | | | |
| 21 | 88.5 | .. | Variable. | Cloudless. |
| 22 | 95.0 | .. | N. W. or S. W. or W. | Ditto. |
| 23 | 93.8 | .. | Calm or W. | Ditto. |
| 24 | 92.0 | .. | W. | Ditto. |
| 25 | 100.5 | .. | N. W. | Ditto. |
| 26 | 93.4 | .. | Calm or N. W. or W. | Scattered \searrow i or \searrow i or \searrow i till 6 P. M. cloudless afterwards. |
| 27 | Sunday. | | | |
| 28 | 92.0 | .. | Calm or N. W. | Cloudless. |
| 29 | 98.0 | .. | W. or N. W. | Ditto. |
| 30 | 105.0 | .. | Calm or N. N. W. | Ditto. |

Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of May, 1853.

| Maximum pressure observed at 9.50 A. M. | | | | | | | | |
|---|------------|--------------|---------|-----------|----------------------|----------|------------------------|--------------------|
| Date. | Barometer. | Temperature. | | | Maximum and Minimum. | | | Aspect of the Sky. |
| | | Of Mercury. | Of Air. | Wet Bulb. | Maximum. | Minimum. | Direction of the Wind. | |
| 1 | 29.275 | 87.0 | 97.5 | 80.5 | .. | .. | N. | Clear. |
| 2 | 29.293 | 89.4 | 94.5 | 72.5 | .. | .. | N. | Ditto. |
| 3 | 29.273 | 89.0 | 94.1 | 73.0 | .. | .. | W. | Ditto. |
| 4 | 29.273 | 88.5 | 92.2 | 68.9 | .. | .. | W. | Ditto. |
| 5 | 29.235 | 87.6 | 93.0 | 71.0 | .. | .. | W. | Ditto. |
| 6 | 29.309 | 86.9 | 93.2 | 71.6 | .. | .. | W. | Ditto. |
| 7 | 29.365 | 88.0 | 94.0 | 75.0 | .. | .. | S. | Ditto. |
| 8 | 29.307 | 86.8 | 93.5 | 72.0 | .. | .. | N. | Ditto. |
| 9 | 29.203 | 87.3 | 94.0 | 72.0 | .. | .. | W. | ^ in zenith. |
| 10 | 29.189 | 91.0 | 97.5 | 75.5 | .. | .. | S. E. | Clear. |
| 11 | 29.297 | 89.5 | 89.5 | 79.4 | .. | .. | N. | ^ all over. |
| 12 | 29.223 | 88.0 | 88.0 | 79.0 | .. | .. | E. | Hazy. |
| 13 | 29.235 | 89.5 | 91.5 | 71.5 | .. | .. | S. | Clear. |
| 14 | 29.279 | 89.0 | 91.8 | 73.4 | .. | .. | S. | Ditto. |
| 15 | 29.285 | 86.0 | 90.0 | 72.0 | .. | .. | W. | Ditto. |
| 16 | 29.429 | 86.6 | 87.6 | 71.9 | .. | .. | N. W. | Ditto. |
| 17 | 29.409 | 86.6 | 88.9 | 71.0 | .. | .. | W. | Ditto. |
| 18 | 29.325 | 86.7 | 90.2 | 74.5 | .. | .. | W. | Hazy. |
| 19 | 29.357 | 87.8 | 91.0 | 75.5 | .. | .. | W. | Ditto. |
| 20 | 29.335 | 90.5 | 93.8 | 79.5 | .. | .. | W. | ^ scattered. |
| 21 | 29.397 | 88.0 | 94.9 | 76.0 | .. | .. | W. | Clear. |
| 22 | 29.401 | 89.0 | 95.6 | 78.5 | .. | .. | S. W. | Ditto. |
| 23 | 29.389 | 90.5 | 96.5 | 80.4 | .. | .. | W. | ^ few in zenith. |
| 24 | 29.403 | 90.9 | 97.7 | 81.0 | .. | .. | W. | Clear. |
| 25 | 29.307 | 92.0 | 98.9 | 81.0 | .. | .. | N. W. | Hazy. |
| 26 | 29.193 | 90.8 | 100.7 | 80.5 | .. | .. | W. | Clear. |
| 27 | 29.173 | 87.9 | 102.5 | 84.5 | .. | .. | W. | Ditto. |
| 28 | 29.205 | 90.0 | 100.0 | 81.0 | .. | .. | W. | Ditto. |
| 29 | 29.301 | 90.8 | 93.5 | 77.0 | .. | .. | N. | Hazy to N. |
| 30 | 29.235 | 90.0 | 98.2 | 79.0 | .. | .. | W. | Clear. |
| 31 | 29.305 | 90.8 | 93.0 | 77.0 | .. | .. | W. | Ditto. |
| Mean. | 29.297 | 88.8 | 94.1 | 75.7 | .. | .. | .. | .... |

Barometer Observations corrected for capillarity only.

Symbols, {
 \ Cirrus.
 ^ Cirro-strati.
 ^ Cumuli.
 ^ Cumulo-strati.
 ^ Nimbi or Nimbus.

W. Muir, Secy. to Govt. N. W. P.

Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of May, 1853. LATITUDE.

Observations at apparent Noon.

| Date. | Barometer. | Temperature. | | | Maximum and Minimum. | | | Aspect of the Sky. |
|-------|------------|--------------|---------|-----------|----------------------|----------|------------------------|---------------------------|
| | | Of Mercury. | Of Air. | Wet Bulb. | Maximum. | Minimum. | Direction of the Wind. | |
| 1 | 29.267 | 88.5 | 99.4 | 82.0 | .. | .. | N. | Clear. |
| 2 | 29.269 | 87.9 | 96.8 | 69.5 | .. | .. | N. | Ditto. |
| 3 | 29.245 | 88.5 | 96.0 | 69.0 | .. | .. | W. | Ditto. |
| 4 | 29.251 | 88.0 | 95.5 | 74.0 | .. | .. | W. | Ditto. |
| 5 | 29.229 | 87.8 | 95.4 | 73.9 | .. | .. | W. | Ditto. |
| 6 | 29.301 | 87.5 | 98.0 | 71.5 | .. | .. | W. | ∪ scattered. |
| 7 | 29.335 | 86.5 | 99.9 | 78.0 | .. | .. | W. | Clear. |
| 8 | 29.279 | 88.0 | 96.0 | 73.8 | .. | .. | N. | ∩ in zenith. |
| 9 | 29.183 | 87.0 | 98.1 | 78.0 | .. | .. | W. | Clear. |
| 10 | 29.153 | 91.9 | 101.0 | 79.5 | .. | .. | S. E. | Ditto. |
| 11 | 29.279 | 91.0 | 95.0 | 77.3 | .. | .. | N. | ∪ in horizon to N. and E. |
| 12 | 29.205 | 90.0 | 91.4 | 77.5 | .. | .. | S. | Hazy. |
| 13 | 29.229 | 90.4 | 94.8 | 71.5 | .. | .. | S. W. | ∩ scattered. |
| 14 | 29.255 | 84.9 | 94.5 | 73.8 | .. | .. | S. | Clear. |
| 15 | 29.239 | 88.0 | 92.0 | 71.5 | .. | .. | W. | Ditto. |
| 16 | 29.405 | 87.9 | 91.9 | 73.9 | .. | .. | N. W. | Ditto. |
| 17 | 29.387 | 88.0 | 93.5 | 70.0 | .. | .. | W. | Ditto. |
| 18 | 29.319 | 86.9 | 92.8 | 75.4 | .. | .. | W. | ∪ all over. |
| 19 | 29.341 | 87.9 | 92.1 | 76.4 | .. | .. | W. | Hazy. |
| 20 | 29.305 | 90.7 | 97.8 | 81.0 | .. | .. | W. | ∩ scattered. |
| 21 | 29.335 | 88.8 | 95.5 | 77.5 | .. | .. | N. W. | Clear. |
| 22 | 29.375 | 89.5 | 98.2 | 80.0 | .. | .. | S. W. | Ditto. |
| 23 | 29.335 | 90.7 | 100.9 | 78.5 | .. | .. | N. | ∩ scattered. |
| 24 | 29.345 | 90.5 | 100.9 | 82.4 | .. | .. | W. | Clear. |
| 25 | 29.279 | 89.0 | 104.2 | 84.6 | .. | .. | N. W. | Hazy. |
| 26 | 29.137 | 88.9 | 102.5 | 81.8 | .. | .. | W. | Clear. |
| 27 | 29.149 | 89.0 | 105.0 | 86.4 | .. | .. | W. | Ditto. |
| 28 | 29.177 | 91.0 | 102.9 | 83.4 | .. | .. | W. | Ditto. |
| 29 | 29.277 | 91.1 | 97.5 | 78.6 | .. | .. | N. | Hazy in horizon. |
| 30 | 29.205 | 91.0 | 99.5 | 79.8 | .. | .. | W. | Clear. |
| 31 | 29.205 | 92.0 | 97.5 | 79.0 | .. | .. | W. | Ditto. |
| Mean. | 29.268 | 89.0 | 97.3 | 77.1 | .. | .. | .. | .... |

Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of May, 1853.

Minimum pressure observed at 4 P. M.

| Date. | Barometer. | Temperature. | | | Maximum and Minimum. | | | Aspect of the Sky. | Rain Gauges. | |
|-------|------------|--------------|---------|-----------|----------------------|----------|-------|----------------------|------------------------------|------------------------|
| | | Of Mercury. | Of Air. | Wet Bulb. | Maximum. | Minimum. | Mean. | | 3 Ft. 2 In. from the ground. | Direction of the Wind. |
| 1 | 29.185 | 90.0 | 101.5 | 80.0 | 100.0 | 85.0 | 92.3 | Clear | .. | N. |
| 2 | 29.165 | 90.0 | 99.5 | 70.5 | 99.1 | 82.5 | 90.8 | Ditto | .. | N. |
| 3 | 29.165 | 90.0 | 99.5 | 70.5 | 99.1 | 84.5 | 91.8 | Ditto | .. | N. |
| 4 | 29.155 | 88.0 | 99.3 | 75.0 | 98.0 | 82.0 | 90.0 | Ditto | .. | W. |
| 5 | 29.159 | 86.6 | 101.0 | 76.2 | 99.0 | 82.6 | 90.8 | Ditto | .. | W. |
| 6 | 29.217 | 89.1 | 102.1 | 77.0 | 101.0 | 82.0 | 91.5 | Ditto | .. | W. |
| 7 | 29.255 | 84.0 | 103.9 | 79.9 | 102.0 | 82.0 | 92.0 | Ditto | .. | N. W. |
| 8 | 29.169 | 89.0 | 102.6 | 79.0 | 102.0 | 81.8 | 91.9 | ✓ in zenith | .. | N. |
| 9 | 29.071 | 88.1 | 100.6 | 78.1 | 99.1 | 82.0 | 90.55 | ✓ to W. | .. | N. |
| 10 | 29.079 | 91.2 | 100.0 | 80.0 | 101.0 | 88.5 | 94.75 | ✓ to N. [S. | .. | W. |
| 11 | 29.181 | 91.2 | 96.0 | 79.5 | 95.5 | 81.0 | 88.25 | Hazy a few ✓ to 0.12 | .. | S. E. |
| 12 | 29.063 | 90.5 | 95.6 | 79.0 | 95.5 | 82.0 | 88.75 | ✓ 2/3 of sky | .. | N. E. |
| 13 | 29.173 | 86.5 | 97.0 | 74.0 | 96.6 | 82.0 | 89.3 | ✓ scattered | .. | S. |
| 14 | 29.179 | 83.4 | 96.6 | 75.5 | 96.0 | 81.5 | 88.75 | Clear | .. | W. |
| 15 | 29.173 | 88.5 | 93.6 | 73.0 | 94.0 | 77.5 | 85.75 | Ditto | .. | S. W. |
| 16 | 29.315 | 83.0 | 94.8 | 75.5 | 94.2 | 77.0 | 85.6 | Ditto | .. | W. |
| 17 | 29.287 | 87.9 | 97.0 | 76.6 | 96.0 | 77.0 | 86.5 | Ditto [of S. | .. | N. W. |
| 18 | 29.245 | 87.0 | 95.2 | 77.0 | 94.2 | 80.6 | 87.4 | ✓ scattered 1/3 | .. | N. W. |
| 19 | 29.263 | 88.5 | 93.0 | 77.5 | 94.0 | 81.6 | 87.8 | .... | .. | S. |
| 20 | 29.257 | 91.4 | 99.0 | 82.0 | 93.8 | 84.5 | 91.65 | ✓ scattered | .. | W. |
| 21 | 29.303 | 90.0 | 100.4 | 82.9 | 99.8 | 85.0 | 92.4 | Clear | .. | W. |
| 22 | 29.293 | 90.0 | 100.3 | 81.9 | 99.9 | 84.8 | 92.35 | ✓ few to N. | .. | N. |
| 23 | 29.225 | 91.2 | 102.5 | 78.0 | 101.0 | 84.7 | 92.85 | ✓ scattered | .. | W. |
| 24 | 29.245 | 91.8 | 103.5 | 83.7 | 103.0 | 85.0 | 94.0 | Clear | .. | N. |
| 25 | 29.155 | 89.9 | 106.0 | 85.0 | 104.8 | 86.7 | 95.75 | Hazy | .. | W. |
| 26 | 29.085 | 89.6 | 99.6 | 81.5 | 100.9 | 88.0 | 94.45 | Clear | .. | W. |
| 27 | 29.057 | 90.9 | 107.5 | 86.0 | 102.0 | 89.0 | 95.5 | Ditto | .. | W. |
| 28 | 29.145 | 90.2 | 90.5 | 77.0 | 107.0 | 90.5 | 98.75 | Drizzling | .. | S. W. |
| 29 | 29.193 | 91.8 | 98.3 | 79.0 | 98.0 | 83.9 | 90.95 | Clear | .. | N. |
| 30 | 29.059 | 91.8 | 101.0 | 79.9 | 100.0 | 86.9 | 93.45 | Ditto | .. | N. W. |
| 31 | 29.105 | 91.0 | 106.0 | 87.0 | 106.0 | 87.0 | 96.5 | Ditto | .. | E. |
| Mean. | 29.178 | 89.1 | 99.5 | 78.6 | 99.3 | 83.5 | 91.40 | .... | 0.12 | .. |

Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of June, 1853.

Maximum pressure observed at 9.50 A. M.

| Date. | Barometer. | Temperature. | | | Maximum and Minimum. | | | Aspect of the Sky. |
|-------|------------|--------------|---------|-----------|----------------------|----------|------------------------|----------------------|
| | | Of Mercury. | Of Air. | Wet Bulb. | Maximum. | Minimum. | Direction of the Wind. | |
| 1 | 29.241 | 94.0 | 99.5 | 78.0 | .. | .. | N. | Clear |
| 2 | 29.151 | 90.0 | 101.0 | 79.5 | .. | .. | N. | Ditto |
| 3 | 29.143 | 92.8 | 105.8 | 82.0 | .. | .. | W. | Ditto |
| 4 | 29.037 | 91.5 | 105.2 | 72.5 | .. | .. | W. | Ditto |
| 5 | 29.067 | 92.0 | 105.0 | 73.0 | .. | .. | W. | Ditto |
| 6 | 29.053 | 91.0 | 106.3 | 69.5 | .. | .. | W. | Ditto |
| 7 | 29.077 | 92.0 | 106.0 | 71.0 | .. | .. | N. | Ditto |
| 8 | 29.151 | 93.0 | 101.5 | 71.0 | .. | .. | N. | Ditto |
| 9 | 29.057 | 90.8 | 106.2 | 73.0 | .. | .. | N.W. | Hazy |
| 10 | 28.977 | 91.0 | 104.8 | 81.0 | .. | .. | N. | ~ scattered |
| 11 | 29.051 | 91.0 | 105.0 | 78.0 | .. | .. | N.W. | ~ in zenith |
| 12 | 29.067 | 92.0 | 106.0 | 79.5 | .. | .. | N. | Hazy |
| 13 | 29.137 | 94.0 | 105.0 | 79.0 | .. | .. | N. | Clear |
| 14 | 29.149 | 91.0 | 106.2 | 77.0 | .. | .. | N.W. | Ditto |
| 15 | 29.231 | 94.0 | 102.0 | 80.0 | .. | .. | N. | Hazy |
| 16 | 29.279 | 94.0 | 93.8 | 80.6 | .. | .. | N.W. | Ditto |
| 17 | 29.245 | 96.5 | 86.0 | 80.0 | .. | .. | N. | ~ to N. |
| 18 | 29.113 | 93.0 | 95.0 | 79.6 | .. | .. | N. E. | ~ scattered all over |
| 19 | 29.149 | 93.0 | 87.5 | 81.5 | .. | .. | N. E. | ~ to N. |
| 20 | 29.109 | 91.5 | 89.4 | 83.6 | .. | .. | E. | ~ all over |
| 21 | 29.021 | 89.9 | 89.0 | 81.6 | .. | .. | N. | ~ scattered |
| 22 | 28.983 | 91.5 | 91.5 | 82.0 | .. | .. | E. | ~ scattered all over |
| 23 | 29.049 | 92.1 | 92.7 | 81.6 | .. | .. | E. | ~ scattered |
| 24 | 29.071 | 92.5 | 94.8 | 82.0 | .. | .. | N. | ~ scattered |
| 25 | 29.033 | 92.0 | 95.0 | 83.9 | .. | .. | W. | Clear |
| 26 | 29.045 | 92.0 | 98.2 | 81.5 | .. | .. | N.W. | Hazy |
| 27 | 29.133 | 94.0 | 95.5 | 82.5 | .. | .. | E. | ~ scattered all over |
| 28 | 29.055 | 95.0 | 97.5 | 81.0 | .. | .. | E. | ~ scattered |
| 29 | 29.053 | 92.4 | 92.4 | 82.0 | .. | .. | N.W. | ~ scattered |
| 30 | 29.109 | 85.0 | 84.3 | 80.4 | .. | .. | N. | ~ all over |
| Mean. | 29.101 | 92.15 | 98.27 | 78.92 | .. | .. | .. | .... |

NOTE.—The Dry Bulb and Maximum Register do not agree, the former always reads more than the latter the average difference is 1° 6' but at times it is far greater.

Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of June, 1853. LATITUDE.

Observations at apparent Noon.

| Date. | Barometer. | Temperature. | | | Maximum and Minimum. | | | Aspect of the Sky. |
|-------|------------|--------------|---------|-----------|----------------------|----------|------------------------|----------------------|
| | | Of Mercury. | Of Air. | Wet Bulb. | Maximum. | Minimum. | Direction of the Wind. | |
| 1 | 29.219 | 91.5 | 105.3 | 82.9 | .. | .. | N. | Clear |
| 2 | 29.113 | 91.5 | 103.5 | 80.5 | .. | .. | N. | Ditto |
| 3 | 29.103 | 92.0 | 108.7 | 84.4 | .. | .. | W. | Ditto |
| 4 | 29.005 | 90.4 | 108.7 | 73.4 | .. | .. | W. | Ditto |
| 5 | 29.009 | 92.6 | 108.2 | 73.1 | .. | .. | W. | Ditto |
| 6 | 29.029 | 91.0 | 110.7 | 70.5 | .. | .. | W. | Ditto |
| 7 | 29.061 | 91.8 | 109.2 | 71.9 | .. | .. | N. | Ditto |
| 8 | 29.113 | 92.9 | 107.7 | 71.0 | .. | .. | N. | Ditto |
| 9 | 29.031 | 92.0 | 110.5 | 74.0 | .. | .. | N.W. | Hazy |
| 10 | 28.905 | 91.0 | 104.0 | 81.0 | .. | .. | N. | ~ scattered |
| 11 | 29.025 | 91.0 | 108.0 | 79.2 | .. | .. | N.W. | Hazy |
| 12 | 29.025 | 92.0 | 106.9 | 80.5 | .. | .. | N. | Ditto |
| 13 | 29.115 | 93.2 | 107.6 | 79.0 | .. | .. | N. | Clear |
| 14 | 29.115 | 94.0 | 110.0 | 79.0 | .. | .. | N. | Ditto |
| 15 | 29.181 | 94.5 | 105.0 | 81.6 | .. | .. | N. | Hazy |
| 16 | 29.277 | 91.0 | 86.0 | 77.5 | .. | .. | W. | Stormy |
| 17 | 29.229 | 89.4 | 89.3 | 80.5 | .. | .. | N. | ~ to N. |
| 18 | 29.083 | 93.9 | 96.6 | 80.5 | .. | .. | N. E. | ~ scattered all over |
| 19 | 29.105 | 93.4 | 92.4 | 82.4 | .. | .. | N. E. | ~ to N. |
| 20 | 29.089 | 92.8 | 90.0 | 84.0 | .. | .. | E. | ~ all over |
| 21 | 28.995 | 90.8 | 90.3 | 82.4 | .. | .. | N. | ~ scattered |
| 22 | 28.957 | 93.0 | 93.5 | 81.5 | .. | .. | N. E. | ~ scattered all over |
| 23 | 29.039 | 94.0 | 94.6 | 80.9 | .. | .. | E. | ~ scattered |
| 24 | 29.039 | 92.5 | 95.6 | 83.9 | .. | .. | N. | Ditto |
| 25 | 29.005 | 91.5 | 96.9 | 83.4 | .. | .. | W. | Clear |
| 26 | 29.019 | 95.0 | 100.8 | 81.5 | .. | .. | N.W. | Hazy |
| 27 | 29.101 | 95.5 | 97.8 | 82.7 | .. | .. | E. | ~ scattered all over |
| 28 | 28.995 | 95.0 | 98.7 | 82.5 | .. | .. | E. | ~ scattered |
| 29 | 29.035 | 93.6 | 94.0 | 81.1 | .. | .. | N.W. | ~ all over |
| 30 | 29.089 | 87.0 | 87.2 | 82.0 | .. | .. | N. E. | Ditto |
| Mean. | 29.104 | 92.3 | 100.6 | 79.6 | .. | .. | .. | .... |

Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of June, 1853. LONGITUDE.

Minimum pressure observed at 4 P. M.

| Date. | Barometer. | Temperature. | | | Maximum and Minimum. | | | Aspect of the Sky. | Rain Gauges. | |
|-------|------------|--------------|---------|-----------|----------------------|----------|--------|--------------------|-----------------------------|------------------------|
| | | Of Mercury. | Of Air. | Wet Bulb. | Maximum. | Minimum. | Mean. | | 3 Ft 2 In. from the ground. | Direction of the Wind. |
| 1 | 29.123 | 96.0 | 108.0 | 85.5 | 108.0 | 90.0 | 99.0 | Clear | .. | N. |
| 2 | 29.061 | 93.0 | 109.0 | 84.0 | 109.0 | 91.5 | 100.25 | Ditto | .. | N. |
| 3 | 29.005 | 96.0 | 109.0 | 82.5 | 109.0 | 92.3 | 100.65 | Ditto | .. | N. |
| 4 | 28.929 | 92.0 | 109.9 | 80.5 | 109.2 | 93.5 | 101.35 | Ditto | .. | W. |
| 5 | 28.959 | 94.0 | 110.0 | 74.5 | 109.4 | 91.4 | 100.4 | Ditto | .. | W. |
| 6 | 28.965 | 93.3 | 111.6 | 80.0 | 111.0 | 91.3 | 101.15 | Ditto | .. | W. |
| 7 | 28.995 | 94.0 | 112.0 | 73.0 | 111.3 | 91.7 | 101.5 | Ditto | .. | N. |
| 8 | 29.005 | 92.0 | 110.4 | 75.6 | 110.0 | 90.5 | 100.25 | Ditto | .. | W. |
| 9 | 28.901 | 92.5 | 113.0 | 75.0 | 113.0 | 96.5 | 104.75 | Hazy | .. | N.W. |
| 10 | 28.887 | 90.5 | 110.0 | 80.0 | 109.6 | 98.0 | 103.8 | W all over | .. | N. |
| 11 | 28.999 | 92.0 | 105.0 | 79.0 | 109.0 | 98.4 | 103.7 | Hazy | .. | N.W. |
| 12 | 28.891 | 93.0 | 104.0 | 81.0 | 107.5 | 99.0 | 103.25 | W all over | .. | N. |
| 13 | 29.031 | 94.0 | 111.0 | 79.5 | 109.8 | 95.0 | 102.4 | Clear | .. | N. |
| 14 | 29.035 | 94.6 | 111.0 | 80.0 | 111.0 | 95.5 | 103.25 | Hazy | .. | W. |
| 15 | 29.077 | 96.0 | 106.0 | 82.0 | 106.0 | 97.0 | 101.5 | Ditto | .. | N. |
| 16 | 29.171 | 90.2 | 93.5 | 78.9 | 98.5 | 93.3 | 95.9 | W to N. | .. | N.W. |
| 17 | 29.125 | 92.0 | 93.4 | 79.6 | 83.9 | 93.0 | 88.45 | Ditto [over | 0.18 | N. |
| 18 | 29.013 | 95.5 | 98.0 | 85.0 | 87.5 | 97.0 | 92.25 | W scattered all | .. | E. |
| 19 | 29.005 | 95.0 | 92.0 | 82.3 | 93.0 | 85.9 | 89.45 | W all over | 1.02 | N.E. |
| 20 | 28.995 | 91.0 | 89.6 | 82.0 | 91.0 | 84.5 | 87.75 | Ditto [over | .. | N. |
| 21 | 28.915 | 93.0 | 93.0 | 82.0 | 92.8 | 84.4 | 88.6 | W scattered all | .. | N. |
| 22 | 28.903 | 93.0 | 94.0 | 82.0 | 93.6 | 86.6 | 90.1 | W ditto | .. | N.E. |
| 23 | 28.973 | 93.0 | 95.5 | 81.5 | 95.0 | 86.7 | 90.85 | W scattered | .. | N. |
| 24 | 28.955 | 92.0 | 98.0 | 84.3 | 98.0 | 90.3 | 94.15 | W scattered | .. | W. |
| 25 | 28.909 | 92.0 | 99.4 | 85.9 | 99.2 | 90.6 | 94.9 | Hazy | .. | W. |
| 26 | 28.975 | 97.0 | 104.0 | 83.0 | 103.4 | 93.6 | 98.5 | Ditto [over | .. | N.W. |
| 27 | 29.037 | 95.6 | 93.9 | 84.0 | 94.0 | 92.4 | 93.2 | W scattered all | .. | N.W. |
| 28 | 28.945 | 95.5 | 94.2 | 88.0 | 95.5 | 89.0 | 92.25 | W all over | .. | E. |
| 29 | 28.985 | 92.7 | 91.0 | 79.0 | 95.5 | 85.0 | 90.25 | W to S. & W. | .. | N.W. |
| 30 | 29.019 | 88.5 | 87.9 | 82.0 | 92.4 | 82.9 | 87.65 | W all over | 1.05 | N.E. |
| Mean. | 28.993 | 93.3 | 101.9 | 81.05 | 102.5 | 90.9 | 96.7 | .... | 2.25 | .. |

Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of July, 1853.

Maximum pressure observed at 9.50 A. M.

| Date. | Barometer. | Temperature. | | | Maximum and Minimum. | | | Aspect of the Sky. |
|-------|------------|--------------|---------|-----------|----------------------|----------|------------------------|--------------------|
| | | Of Mercury. | Of Air. | Wet Bulb. | Maximum. | Minimum. | Direction of the Wind. | |
| 1 | 29.077 | 89.0 | 88.1 | 84.0 | .. | .. | N. | ~ to W. ~ to E. |
| 2 | 29.069 | 87.7 | 85.9 | 82.9 | .. | .. | S. E. | ~ all over |
| 3 | 29.135 | 89.9 | 88.0 | 84.0 | .. | .. | E. | ~ scattered |
| 4 | 29.133 | 89.5 | 88.3 | 83.6 | .. | .. | S. E. | ~ all over |
| 5 | 29.029 | 89.9 | 88.6 | 82.7 | .. | .. | S. E. | ~ all over |
| 6 | 29.025 | 86.1 | 85.5 | 82.6 | .. | .. | S. W. | Ditto |
| 7 | 29.101 | 85.4 | 83.5 | 81.5 | .. | .. | S. E. | Ditto |
| 8 | 29.069 | 87.0 | 85.2 | 82.8 | .. | .. | Lull. | Ditto |
| 9 | 29.033 | 84.0 | 83.1 | 79.9 | .. | .. | Do. | Ditto |
| 10 | 28.943 | 86.2 | 86.5 | 80.5 | .. | .. | N. W. | Ditto |
| 11 | 29.011 | 82.9 | 79.0 | 77.9 | .. | .. | N. | Ditto |
| 12 | 29.015 | 88.0 | 88.0 | 83.8 | .. | .. | N. | Ditto |
| 13 | 29.057 | 86.8 | 86.0 | 81.7 | .. | .. | E. | ~ in horizon |
| 14 | 29.069 | 87.9 | 88.3 | 81.8 | .. | .. | E. | ~ scattered |
| 15 | 29.123 | 87.0 | 86.6 | 82.5 | .. | .. | N. E. | ~ scattered |
| 16 | 29.129 | 89.5 | 91.1 | 83.6 | .. | .. | W. | Ditto |
| 17 | 29.159 | 89.0 | 84.6 | 82.0 | .. | .. | N. W. | ~ all over |
| 18 | 29.165 | 87.0 | 85.6 | 80.0 | .. | .. | N. | Ditto |
| 19 | 29.135 | 84.7 | 83.6 | 79.4 | .. | .. | N. W. | Ditto |
| 20 | 29.043 | 86.2 | 87.4 | 81.8 | .. | .. | W. | ~ scattered |
| 21 | 29.067 | 87.0 | 87.8 | 81.7 | .. | .. | W. | Ditto |
| 22 | 29.135 | 86.0 | 86.0 | 82.9 | .. | .. | W. | Ditto |
| 23 | 29.157 | 88.3 | 85.4 | 81.5 | .. | .. | S. E. | Raining. |
| 24 | 29.167 | 86.5 | 83.1 | 80.9 | .. | .. | N. | ~ all over |
| 25 | 29.083 | 82.0 | 82.0 | 80.4 | .. | .. | W. | Raining. |
| 26 | 29.105 | 84.0 | 83.7 | 77.5 | .. | .. | S. W. | ~ scattered |
| 27 | 29.151 | 83.1 | 82.9 | 77.5 | .. | .. | W. | Hazy |
| 28 | 29.117 | 84.5 | 85.0 | 78.0 | .. | .. | N. W. | Ditto |
| 29 | 29.185 | 85.0 | 85.5 | 78.4 | .. | .. | W. | ~ in zenith |
| 30 | 29.145 | 85.0 | 86.3 | 78.5 | .. | .. | W. | Clear |
| 31 | 29.105 | 87.0 | 87.5 | 78.4 | .. | .. | N. W. | Ditto |
| Mean. | 29.095 | 86.5 | 85.7 | 81.1 | .. | .. | .. | .... |

Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of July, 1853.

Observations at apparent Noon.

| Date. | Barometer. | Temperature. | | | Maximum and Minimum. | | | Aspect of the Sky. |
|-------|------------|--------------|---------|-----------|----------------------|----------|------------------------|--------------------|
| | | Of Mercury. | Of Air. | Wet Bulb. | Maximum. | Minimum. | Direction of the Wind. | |
| 1 | 29.059 | 85.5 | 84.2 | 81.4 | .. | .. | S. E. | ~ all over |
| 2 | 29.051 | 89.0 | 88.0 | 83.2 | .. | .. | S. E. | ~ to N. |
| 3 | 29.105 | 90.0 | 88.5 | 84.0 | .. | .. | E. | ~ all over |
| 4 | 29.085 | 90.5 | 90.3 | 84.0 | .. | .. | S. E. | ~ scattered |
| 5 | 29.005 | 88.4 | 88.6 | 84.0 | .. | .. | S. E. | ~ all over |
| 6 | 29.023 | 86.5 | 86.0 | 82.6 | .. | .. | W. | Ditto |
| 7 | 29.091 | 86.0 | 84.4 | 81.5 | .. | .. | S. E. | Ditto |
| 8 | 29.023 | 86.6 | 85.0 | 82.7 | .. | .. | E. | Ditto |
| 9 | 28.997 | 86.0 | 86.3 | 80.9 | .. | .. | N. | Ditto |
| 10 | 28.931 | 86.5 | 86.8 | 80.9 | .. | .. | N.W. | Ditto |
| 11 | 28.993 | 83.5 | 79.5 | 77.8 | .. | .. | N. | Ditto |
| 12 | 29.007 | 87.0 | 86.7 | 82.8 | .. | .. | N. | Ditto |
| 13 | 29.039 | 87.5 | 87.5 | 81.0 | .. | .. | E. | ~ in horizon |
| 14 | 29.055 | 89.0 | 89.8 | 81.9 | .. | .. | E. | ~ all over |
| 15 | 29.113 | 88.0 | 88.4 | 82.7 | .. | .. | N. E. | ~ scattered |
| 16 | 29.113 | 91.0 | 94.5 | 83.4 | .. | .. | W. | Ditto |
| 17 | 29.147 | 89.9 | 85.4 | 82.0 | .. | .. | N.W. | ~ all over |
| 18 | 29.141 | 87.2 | 87.5 | 81.0 | .. | .. | N. | Ditto |
| 19 | 29.115 | 85.6 | 85.3 | 81.5 | .. | .. | W. | Ditto |
| 20 | 29.019 | 88.0 | 88.4 | 81.5 | .. | .. | W. | ~ scattered |
| 21 | 29.053 | 88.0 | 88.5 | 81.5 | .. | .. | N.W. | ~ all over |
| 22 | 29.117 | 88.0 | 88.9 | 83.2 | .. | .. | N. E. | Ditto |
| 23 | 29.125 | 87.8 | 85.6 | 82.0 | .. | .. | N. E. | Raining |
| 24 | 29.135 | 87.0 | 85.4 | 82.0 | .. | .. | N. | ~ all over |
| 25 | 29.073 | 83.1 | 82.2 | 81.0 | .. | .. | N.W. | Raining |
| 26 | 29.097 | 85.0 | 84.4 | 78.8 | .. | .. | W. | ~ scattered |
| 27 | 29.143 | 85.0 | 84.8 | 78.8 | .. | .. | W. | Hazy |
| 28 | 29.117 | 86.0 | 86.5 | 78.5 | .. | .. | N.W. | Ditto |
| 29 | 29.165 | 87.0 | 87.4 | 79.2 | .. | .. | W. | ~ in zenith |
| 30 | 29.133 | 88.0 | 89.0 | 79.1 | .. | .. | W. | Clear |
| 31 | 29.089 | 87.0 | 89.4 | 79.1 | .. | .. | N.W. | Ditto |
| Mean. | 29.076 | 87.3 | 86.9 | 80.8 | .. | .. | .. | .... |

Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of July, 1853.

Minimum pressure observed at 4 P. M.

| Date. | Barometer. | Temperature. | | | Maximum and Minimum. | | | Aspect of the Sky. | Rain Gauges. | |
|-------|------------|--------------|---------|-----------|----------------------|----------|-------|--------------------|------------------------------|------------------------|
| | | Of Mercury. | Of Air. | Wet Bulb. | Maximum. | Minimum. | Mean. | | 3 Ft. 2 In. from the ground. | Direction of the Wind. |
| 1 | 29.013 | 86.0 | 83.0 | 80.5 | 87.9 | 84.0 | 85.95 | ☾ all over | 1.07 | E. |
| 2 | 28.982 | 90.6 | 90.4 | 85.0 | 89.5 | 81.3 | 85.4 | ☾ to N. | 0.22 | E. |
| 3 | 29.029 | 90.0 | 93.9 | 82.9 | 92.9 | 81.4 | 87.15 | ☾ in horizon | .. | E. |
| 4 | 29.005 | 90.1 | 89.0 | 83.5 | 90.5 | 82.9 | 86.7 | ☾ all over | 0.37 | S. E. |
| 5 | 28.969 | 89.0 | 84.2 | 81.0 | 89.0 | 84.2 | 86.6 | Ditto | .. | N. |
| 6 | 28.995 | 87.0 | 86.5 | 82.7 | 86.0 | 82.9 | 84.45 | Ditto | .. | S. W. |
| 7 | 29.031 | 86.5 | 85.0 | 81.7 | 86.0 | 80.0 | 83.0 | Ditto | 3.27 | E. |
| 8 | 28.985 | 87.8 | 85.0 | 78.5 | 84.5 | 80.4 | 82.45 | Ditto | 0.09 | E. |
| 9 | 28.891 | 87.0 | 86.6 | 80.5 | 85.9 | 78.9 | 82.4 | Ditto | 0.49 | N. |
| 10 | 28.905 | 87.0 | 87.5 | 81.0 | 87.0 | 78.8 | 82.9 | Ditto | .. | N. W. |
| 11 | 28.949 | 86.5 | 85.6 | 81.9 | 85.5 | 76.8 | 81.15 | Ditto | 0.24 | N. |
| 12 | 28.943 | 88.8 | 88.2 | 83.9 | 87.5 | 80.8 | 84.15 | Ditto | .. | N. |
| 13 | 28.977 | 88.9 | 89.0 | 81.7 | 88.6 | 82.0 | 85.3 | ☾ scattered | 0.19 | E. |
| 14 | 29.011 | 89.6 | 90.5 | 82.0 | 89.3 | 82.0 | 85.65 | ☾ all over | .. | E. |
| 15 | 29.053 | 90.7 | 90.5 | 83.5 | 89.8 | 81.8 | 85.8 | ☾ scattered | 0.17 | E. |
| 16 | 29.063 | 84.0 | 94.6 | 84.3 | 94.0 | 84.5 | 89.25 | ☾ to S. | .. | N. W. |
| 17 | 29.105 | 89.5 | 84.9 | 80.7 | 85.5 | 82.7 | 84.1 | ☾ all over | .. | N. W. |
| 18 | 29.081 | 88.0 | 86.0 | 81.6 | 88.4 | 81.9 | 85.15 | Raining | .. | N. W. |
| 19 | 29.033 | 87.0 | 86.0 | 81.9 | 85.6 | 81.3 | 83.35 | ☾ all over | 0.15 | N. W. |
| 20 | 28.957 | 89.9 | 90.3 | 82.0 | 89.6 | 81.0 | 85.3 | ☾ to S. | .. | W. |
| 21 | 28.995 | 85.5 | 84.5 | 81.7 | 89.6 | 82.7 | 86.15 | Raining | 1.57 | W. |
| 22 | 29.055 | 83.0 | 83.5 | 81.0 | 89.0 | 82.3 | 85.65 | ☾ all over | .22 | N. |
| 23 | 29.079 | 88.0 | 85.0 | 82.1 | 90.0 | 81.7 | 85.85 | Ditto | 0.72 | N. E. |
| 24 | 29.059 | 87.2 | 88.0 | 83.0 | 87.8 | 81.5 | 84.65 | ☾ all over | 0.32 | W. |
| 25 | 29.011 | 84.5 | 85.4 | 78.6 | 84.5 | 81.5 | 83.0 | ☾ in horizon | 0.40 | W. |
| 26 | 29.073 | 86.7 | 85.5 | 79.9 | 84.5 | 79.8 | 82.15 | ☾ scattered | .. | W. |
| 27 | 29.085 | 88.0 | 86.7 | 79.0 | 85.5 | 80.0 | 82.75 | Hazy | .. | W. |
| 28 | 29.059 | 89.1 | 88.0 | 79.8 | 85.5 | 79.9 | 82.7 | ☾ to N. | .. | N. W. |
| 29 | 29.117 | 90.0 | 89.4 | 79.4 | 87.0 | 80.3 | 83.65 | Few ☾ scattered | .. | N. W. |
| 30 | 29.069 | 91.2 | 90.6 | 79.1 | 88.0 | 80.4 | 84.2 | Clear | .. | W. |
| 31 | 29.027 | 88.0 | 91.0 | 80.1 | 88.9 | 81.9 | 85.4 | Ditto | .. | N. W. |
| Mean. | 29.020 | 88.4 | 87.7 | 81.4 | 87.8 | 81.3 | 84.6 | .... | 9.49 | .. |

Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of August, 1853.

| Maximum pressure observed at 9.50 A. M. | | | | | | | | |
|---|------------|--------------|---------|-----------|----------------------|----------|------------------------|-----------------------------|
| Date. | Barometer. | Temperature. | | | Maximum and Minimum. | | | Aspect of the Sky. |
| | | Of Mercury. | Of Air. | Wet Bulb. | Maximum. | Minimum. | Direction of the Wind. | |
| 1 | 29.135 | 86.5 | 87.7 | 77.9 | .. | .. | N. W. | Clear |
| 2 | 29.191 | 87.0 | 88.6 | 79.0 | .. | .. | W. | ~ all over |
| 3 | 29.209 | 87.0 | 89.0 | 78.7 | .. | .. | W. | Clear |
| 4 | 29.209 | 87.2 | 89.0 | 82.8 | .. | .. | W. | Ditto |
| 5 | 29.180 | 87.6 | 89.4 | 79.3 | .. | .. | W. | Ditto |
| 6 | 29.199 | 87.0 | 89.4 | 78.4 | .. | .. | W. | Ditto |
| 7 | 29.197 | 88.0 | 89.0 | 75.0 | .. | .. | N. W. | Ditto |
| 8 | 29.191 | 88.8 | 89.9 | 75.6 | .. | .. | .. | Ditto |
| 9 | 29.217 | 88.0 | 89.5 | 76.0 | .. | .. | W. | Ditto |
| 10 | 29.271 | 88.8 | 91.1 | 78.5 | .. | .. | N. W. | Hazy to E. |
| 11 | 29.269 | 88.9 | 91.2 | 78.9 | .. | .. | W. | ~ scattered all over |
| 12 | 29.339 | 90.0 | 91.0 | 79.9 | .. | .. | N. | ~ scattered |
| 13 | 29.309 | 91.5 | 94.2 | 79.9 | .. | .. | W. | ~ ditto |
| 14 | 29.209 | 91.5 | 95.5 | 78.0 | .. | .. | N. W. | A few ~ to N. |
| 15 | 29.223 | 89.0 | 91.2 | 79.0 | .. | .. | W. | Hazy |
| 16 | 29.243 | 88.9 | 90.9 | 77.5 | .. | .. | W. | ~ in zenith |
| 17 | 29.297 | 90.5 | 93.5 | 76.4 | .. | .. | N. | ~ scattered |
| 18 | 29.329 | 90.0 | 92.0 | 76.8 | .. | .. | N. W. | ~ all over |
| 19 | 29.265 | 90.0 | 92.2 | 81.2 | .. | .. | N. W. | Clear |
| 20 | 29.205 | 92.4 | 95.1 | 79.0 | .. | .. | W. | Ditto |
| 21 | 29.137 | 92.5 | 94.1 | 78.6 | .. | .. | N. W. | Hazy |
| 22 | 29.165 | 90.5 | 91.7 | 77.5 | .. | .. | N. W. | ~ in zenith |
| 23 | 29.157 | 91.1 | 92.1 | 80.7 | .. | .. | N. W. | ~ to South |
| 24 | 29.243 | 90.7 | 90.2 | 80.5 | .. | .. | N. E. | ~ scattered |
| 25 | 29.249 | 90.6 | 91.2 | 81.4 | .. | .. | N. E. | Ditto |
| 26 | 29.225 | 95.0 | 93.5 | 81.0 | .. | .. | N. W. | ~ scattered in zenith |
| 27 | 29.167 | 96.0 | 95.7 | 78.5 | .. | .. | N. W. | Clear |
| 28 | 29.200 | 95.1 | 94.8 | 78.6 | .. | .. | N. | Ditto |
| 29 | 29.239 | 92.7 | 89.4 | 82.9 | .. | .. | N. E. | ~ towards S. [all over |
| 30 | 29.226 | 90.0 | 88.8 | 82.5 | .. | .. | E. | Ditto N. E. and ~ scattered |
| 31 | 29.221 | 93.0 | 91.7 | 81.9 | .. | .. | S. E. | ~ scattered all over |
| Mean. | 29.223 | 90.2 | 91.4 | 79.1 | .. | .. | .. | .... |

Meteorological Register kept at the Office of the Secretary to Government. N. W. P. Agra, for the Month of August, 1853.

Observations at apparent Noon.

| Date. | Barometer. | Temperature. | | | Maximum and Minimum. | | | Aspect of the Sky. |
|-------|------------|--------------|---------|-----------|----------------------|----------|------------------------|-----------------------|
| | | Of Mercury. | Of Air. | Wet Bulb. | Maximum. | Minimum. | Direction of the Wind. | |
| 1 | 29.119 | 88.8 | 89.5 | 78.1 | .. | .. | N.W. | Clear |
| 2 | 29.183 | 88.6 | 89.7 | 79.0 | .. | .. | W. | ~ all over |
| 3 | 29.203 | 89.4 | 90.5 | 79.4 | .. | .. | W. | ~ scattered |
| 4 | 29.197 | 89.9 | 91.3 | 80.5 | .. | .. | W. | Clear |
| 5 | 29.165 | 90.0 | 91.8 | 80.0 | .. | .. | W. | Ditto |
| 6 | 29.141 | 90.5 | 91.5 | 78.2 | .. | .. | W. | Ditto |
| 7 | 29.079 | 88.9 | 91.4 | 75.0 | .. | .. | N.W. | Ditto |
| 8 | 29.169 | 90.2 | 92.2 | 76.6 | .. | .. | N.W. | Few ~ scattered |
| 9 | 29.203 | 90.4 | 92.6 | 78.6 | .. | .. | N.W. | Clear |
| 10 | 29.263 | 91.4 | 93.6 | 78.6 | .. | .. | W. | Hazy to E. |
| 11 | 29.261 | 92.0 | 93.0 | 77.5 | .. | .. | W. | ~ scattered all over |
| 12 | 29.319 | 90.8 | 92.2 | 79.5 | .. | .. | N. | ~ scattered |
| 13 | 29.279 | 93.8 | 96.3 | 78.8 | .. | .. | N.W. | ~ ditto |
| 14 | 29.193 | 92.0 | 96.4 | 78.0 | .. | .. | N.W. | A few ~ to N. |
| 15 | 29.205 | 90.8 | 92.7 | 78.0 | .. | .. | .. | Hazy |
| 16 | 29.233 | 91.2 | 93.7 | 77.5 | .. | .. | N. | ~ scattered in zenith |
| 17 | 29.269 | 92.0 | 95.3 | 77.1 | .. | .. | N.W. | ~ scattered |
| 18 | 29.305 | 92.0 | 93.0 | 79.0 | .. | .. | W. | ~ all over |
| 19 | 29.233 | 92.0 | 95.3 | 81.0 | .. | .. | N.W. | ~ scattered |
| 20 | 29.167 | 94.0 | 98.5 | 79.4 | .. | .. | W. | Clear |
| 21 | 29.111 | 93.0 | 95.0 | 79.0 | .. | .. | W. | Hazy |
| 22 | 29.135 | 93.0 | 94.7 | 81.8 | .. | .. | N. | ~ scattered |
| 23 | 29.131 | 93.0 | 95.0 | 80.2 | .. | .. | N. | ~ ditto |
| 24 | 29.219 | 92.5 | 92.2 | 79.5 | .. | .. | N.E. | Ditto |
| 25 | 29.235 | 95.0 | 93.8 | 80.5 | .. | .. | N.E. | Ditto |
| 26 | 29.181 | 98.9 | 100.0 | 81.0 | .. | .. | N.W. | Ditto |
| 27 | 29.143 | 99.8 | 99.8 | 78.5 | .. | .. | N.W. | Clear |
| 28 | 29.181 | 98.0 | 97.8 | 78.3 | .. | .. | N.W. | Ditto |
| 29 | 29.219 | 93.7 | 91.9 | 82.5 | .. | .. | N. | ~ towards N. |
| 30 | 29.205 | 91.8 | 90.2 | 81.5 | .. | .. | E. | ~ scattered all over |
| 31 | 29.197 | 95.5 | 95.5 | 82.1 | .. | .. | .. | Ditto |
| Mean. | 29.199 | 92.4 | 93.8 | 79.2 | .. | .. | .. | .... |

Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of Aug. 1853. LONGITUDE,

Minimum pressure observed at 4 P. M.

| Date. | Barometer. | Temperature. | | | Maximum and Minimum. | | | Aspect of the Sky. | Rain Gauges. | |
|-------|------------|--------------|---------|-----------|----------------------|----------|-------|--------------------|-----------------------------|------------------------|
| | | Of Mercury. | Of Air. | Wet Bulb. | Maximum. | Minimum. | Mean. | | 3 Ft 2 In. from the ground. | Direction of the Wind. |
| 1 | 29.085 | 89.0 | 89.5 | 79.2 | 89.7 | 81.9 | 85.8 | ~ all over | .. | N.W. |
| 2 | 29.119 | 91.6 | 91.6 | 79.0 | 90.5 | 81.9 | 86.2 | Ditto | .. | N.W. |
| 3 | 29.155 | 91.0 | 91.7 | 79.8 | 89.4 | 82.5 | 85.95 | ~ scattered | .. | N.W. |
| 4 | 29.127 | 92.5 | 93.4 | 80.5 | 92.1 | 83.4 | 87.8 | Clear | .. | N.W. |
| 5 | 29.099 | 93.8 | 93.6 | 80.0 | 92.4 | 83.7 | 88.1 | Ditto | .. | N.W. |
| 6 | 29.075 | 91.0 | 93.6 | 77.0 | 91.2 | 83.0 | 87.1 | Ditto | .. | N.W. |
| 7 | 29.077 | 89.6 | 93.0 | 76.3 | 91.5 | 83.2 | 87.4 | Ditto | .. | N.W. |
| 8 | 29.109 | 92.9 | 94.0 | 76.8 | 92.0 | 82.3 | 87.15 | Ditto | .. | N.W. |
| 9 | 29.163 | 94.1 | 95.1 | 79.4 | 92.7 | 83.0 | 87.85 | Ditto | .. | N.W. |
| 10 | 29.175 | 94.6 | 94.6 | 79.0 | 92.6 | 83.4 | 87.5 | ~ scattered | .. | N.W. |
| 11 | 29.193 | 93.0 | 94.6 | 78.0 | 92.4 | 83.6 | 88.0 | ~ scatd. all o'er | .. | W. |
| 12 | 29.239 | 92.0 | 93.0 | 80.3 | 91.7 | 86.6 | 89.15 | ~ scattered | .. | N. |
| 13 | 29.183 | 94.0 | 97.4 | 79.0 | 95.0 | 86.5 | 90.75 | ~ ditto | .. | N.W. |
| 14 | 29.095 | 92.2 | 97.8 | 78.6 | 95.2 | 87.0 | 91.1 | Few ~ scattered | .. | N.W. |
| 15 | 29.131 | 93.0 | 93.9 | 78.4 | 95.0 | 86.2 | 90.6 | ~ all over | .. | W. |
| 16 | 29.205 | 94.0 | 96.0 | 77.8 | 95.0 | 84.0 | 89.5 | ~ scatd. in Z. | .. | N. |
| 17 | 29.189 | 94.0 | 96.7 | 77.7 | 94.5 | 83.8 | 89.15 | ~ scattered | .. | N.W. |
| 18 | 29.209 | 93.9 | 94.4 | 80.2 | 93.1 | 83.0 | 88.5 | ~ all over | .. | N. E. |
| 19 | 29.145 | 93.7 | 94.9 | 79.5 | 94.0 | 86.5 | 90.25 | ~ towards E. | .. | N.W. |
| 20 | 29.075 | 94.0 | 100.4 | 79.5 | 98.2 | 86.8 | 92.5 | ~ to west | .. | W. |
| 21 | 29.059 | 93.0 | 97.3 | 79.6 | 95.1 | 88.7 | 91.9 | Ditto | .. | W. |
| 22 | 29.079 | 93.1 | 95.0 | 79.3 | 95.2 | 86.6 | 90.9 | Few ~ scatd. | .. | E. |
| 23 | 29.079 | 94.0 | 95.4 | 79.5 | 95.5 | 87.2 | 91.35 | ~ scattered | .. | N.W. |
| 24 | 29.193 | 93.0 | 92.6 | 79.5 | 95.2 | 85.0 | 85.1 | Ditto | .. | N. E. |
| 25 | 29.127 | 99.5 | 96.6 | 78.9 | 95.0 | 84.0 | 89.5 | ~ scattered | .. | N. |
| 26 | 29.079 | 101.0 | 101.4 | 82.0 | 101.6 | 83.5 | 92.55 | ~ ditto | .. | N. E. |
| 27 | 29.029 | 105.7 | 103.2 | 81.0 | 103.0 | 87.3 | 95.15 | Clear | .. | N. |
| 28 | 29.085 | 105.0 | 102.7 | 80.6 | 101.7 | 86.2 | 93.95 | Ditto | .. | W. |
| 29 | 29.155 | 87.8 | 83.5 | 79.1 | 101.9 | 87.2 | 94.55 | ~ all over | .. | W. |
| 30 | 29.119 | 98.0 | 95.2 | 81.8 | 101.5 | 86.2 | 93.85 | ~ scatd. all o'er | .. | E. |
| 31 | 29.047 | 101.6 | 100.0 | 82.9 | 101.8 | 81.2 | 91.0 | Ditto | .. | .. |
| Mean. | 29.126 | 94.4 | 95.2 | 79.4 | 94.7 | 84.7 | 89.7 | .... | .. | .. |

Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of September, 1853.

Maximum pressure observed at 9.50 A. M.

| Date. | Barometer. | Temperature. | | | Maximum and Minimum. | | | Aspect of the Sky. |
|-------|------------|--------------|---------|-----------|----------------------|----------|------------------------|--------------------|
| | | Of Mercury. | Of Air. | Wet Bulb. | Maximum. | Minimum. | Direction of the Wind. | |
| 1 | 29.279 | 96.0 | 95.4 | 82.4 | .. | .. | E. | ~ scattered |
| 2 | 29.231 | 95.6 | 95.0 | 84.0 | .. | .. | N. E. | Ditto |
| 3 | 29.213 | 94.0 | 93.0 | 82.0 | .. | .. | S. E. | Ditto |
| 4 | 29.275 | 91.5 | 92.0 | 81.6 | .. | .. | E. | ~ scattered |
| 5 | 29.271 | 90.5 | 91.2 | 83.4 | .. | .. | E. | ~ ditto |
| 6 | 29.171 | 92.7 | 93.2 | 80.4 | .. | .. | N.W. | Clear |
| 7 | 29.139 | 91.0 | 91.4 | 78.5 | .. | .. | N.W. | Hazy |
| 8 | 29.173 | 90.0 | 90.4 | 78.0 | .. | .. | N.W. | Clear |
| 9 | 29.201 | 88.0 | 88.6 | 76.7 | .. | .. | N.W. | Ditto |
| 10 | 29.235 | 87.9 | 88.3 | 76.4 | .. | .. | N.W. | Ditto |
| 11 | 29.173 | 86.8 | 87.5 | 76.2 | .. | .. | N. | Ditto |
| 12 | 29.223 | 89.0 | 89.6 | 76.5 | .. | .. | N.W. | Ditto |
| 13 | 29.257 | 91.7 | 91.9 | 77.0 | .. | .. | N.W. | ~ scattered |
| 14 | 29.303 | 92.0 | 92.7 | 75.3 | .. | .. | N.W. | Clear |
| 15 | 29.325 | 92.5 | 93.3 | 75.6 | .. | .. | N.W. | Ditto |
| 16 | 29.341 | 92.0 | 92.2 | 75.6 | .. | .. | N.W. | ~ scattered |
| 17 | 29.369 | 91.0 | 91.8 | 75.3 | .. | .. | N.W. | Ditto |
| 18 | 29.385 | 89.4 | 90.2 | 74.9 | .. | .. | N.W. | Clear |
| 19 | 29.367 | 90.0 | 90.5 | 76.5 | .. | .. | N.W. | ~ scattered |
| 20 | 29.373 | 89.0 | 89.5 | 76.5 | .. | .. | N.W. | Ditto |
| 21 | 29.377 | 88.0 | 88.6 | 75.0 | .. | .. | N.W. | Clear |
| 22 | 29.385 | 89.5 | 89.6 | 75.4 | .. | .. | N. | ~ scattered |
| 23 | 29.397 | 90.0 | 90.5 | 76.4 | .. | .. | N.W. | Clear |
| 24 | 29.341 | 90.7 | 91.4 | 75.0 | .. | .. | N.W. | Ditto |
| 25 | 29.329 | 92.0 | 92.3 | 76.8 | .. | .. | N. E. | Ditto |
| 26 | 29.311 | 91.7 | 92.8 | 79.4 | .. | .. | S. E. | Ditto |
| 27 | 29.257 | 92.5 | 93.0 | 74.2 | .. | .. | S.W. | Ditto |
| 28 | 29.261 | 90.8 | 91.5 | 72.5 | .. | .. | N. E. | Ditto |
| 29 | 29.277 | 88.9 | 89.5 | 76.4 | .. | .. | S. E. | ~ towards E. |
| 30 | 29.313 | 88.6 | 88.8 | 78.0 | .. | .. | W. | ~ few scattered |
| Mean. | 29.285 | 90.78 | 91.19 | 97.40 | .. | .. | .. | .... |

Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of Sept. 1853.

Observations at apparent Noon.

| Date. | Barometer. | Temperature. | | | Maximum and Minimum. | | | Aspect of the Sky. |
|-------|------------|--------------|---------|-----------|----------------------|----------|------------------------|-------------------------|
| | | Of Mercury. | Of Air. | Wet Bulb. | Maximum. | Minimum. | Direction of the Wind. | |
| 1 | 29.229 | 97.5 | 97.3 | 83.5 | .. | .. | E. | ~ scattered |
| 2 | 29.205 | 95.9 | 94.8 | 84.0 | .. | .. | N. E. | Ditto |
| 3 | 29.197 | 95.8 | 95.8 | 81.5 | .. | .. | N. W. | Ditto |
| 4 | 29.253 | 92.8 | 94.0 | 82.0 | .. | .. | E. | ^ all over |
| 5 | 29.231 | 92.5 | 92.3 | 83.0 | .. | .. | E. | ^ all over |
| 6 | 29.141 | 95.6 | 96.7 | 79.0 | .. | .. | N. W. | ^ scattered |
| 7 | 29.123 | 95.0 | 95.5 | 79.5 | .. | .. | N. W. | Hazy |
| 8 | 29.147 | 93.9 | 94.5 | 78.9 | .. | .. | N. W. | ^ very few scattered |
| 9 | 29.201 | 91.6 | 92.5 | 78.0 | .. | .. | N. W. | ~ scattered |
| 10 | 29.231 | 91.4 | 91.8 | 74.9 | .. | .. | N. W. | Clear |
| 11 | 29.151 | 91.0 | 91.7 | 76.4 | .. | .. | W. | Ditto |
| 12 | 29.215 | 93.0 | 93.9 | 75.6 | .. | .. | N. W. | Ditto |
| 13 | 29.247 | 94.8 | 95.4 | 76.4 | .. | .. | N. W. | ^ scattered |
| 14 | 29.297 | 96.7 | 97.3 | 75.4 | .. | .. | N. W. | Clear |
| 15 | 29.315 | 96.0 | 96.8 | 74.8 | .. | .. | N. W. | Ditto |
| 16 | 29.323 | 95.0 | 95.9 | 75.6 | .. | .. | N. W. | Ditto |
| 17 | 29.359 | 93.0 | 93.1 | 73.8 | .. | .. | N. W. | ^ scattered |
| 18 | 29.365 | 92.3 | 92.0 | 75.0 | .. | .. | N. W. | Clear |
| 19 | 29.325 | 94.5 | 94.5 | 74.3 | .. | .. | N. W. | ~ scattered |
| 20 | 29.357 | 91.2 | 91.5 | 75.4 | .. | .. | N. W. | Ditto |
| 21 | 29.365 | 91.0 | 91.8 | 75.6 | .. | .. | N. W. | Ditto |
| 22 | 29.355 | 91.5 | 92.4 | 74.5 | .. | .. | N. W. | Ditto |
| 23 | 29.373 | 92.5 | 93.0 | 76.4 | .. | .. | N. W. | Ditto |
| 24 | 29.315 | 91.5 | 94.0 | 74.5 | .. | .. | N. W. | ^ ditto |
| 25 | 29.305 | 95.8 | 96.0 | 74.5 | .. | .. | N. E. | ^ in horizon towards E. |
| 26 | 29.267 | 94.5 | 95.2 | 71.9 | .. | .. | E. | Clear |
| 27 | 29.235 | 94.0 | 94.8 | 74.6 | .. | .. | .. | Ditto |
| 28 | 29.237 | 93.9 | 94.7 | 72.7 | .. | .. | .. | Ditto |
| 29 | 29.237 | 92.7 | 93.0 | 76.7 | .. | .. | N. W. | Ditto |
| 30 | 29.303 | 92.0 | 92.5 | 78.6 | .. | .. | W. | ^ few scattered |
| Mean. | 29.263 | 93.66 | 94.16 | 77.00 | .. | .. | .. | |

1853.]

Meteorological Register kept at Agra.

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Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of Sept. 1853.

Minimum pressure observed at 4 P. M.

| Date. | Barometer. | Temperature. | | | Maximum and Minimum. | | | Aspect of the Sky. | Rain Gauges. | |
|-------|------------|--------------|---------|-----------|----------------------|----------|-------|--------------------|------------------------------|------------------------|
| | | Of Mercury. | Of Air. | Wet Bulb. | Maximum. | Minimum. | Mean. | | 3 Ft. 2 In. from the ground. | Direction of the Wind. |
| 1 | 29.111 | 99.6 | 98.9 | 83.5 | 99.1 | 81.3 | 90.2 | ~ scattered | .. | E. |
| 2 | 29.111 | 94.8 | 90.6 | 80.2 | 99.9 | 85.5 | 92.65 | ~ all over | .. | N. E. |
| 3 | 29.133 | 94.2 | 91.9 | 81.5 | 91.0 | 82.6 | 86.8 | Ditto | .. | N. E. |
| 4 | 29.159 | 92.3 | 92.0 | 81.9 | 93.2 | 82.0 | 87.5 | Ditto | .. | E. |
| 5 | 29.153 | 94.0 | 93.7 | 83.0 | 93.3 | 83.5 | 88.4 | Ditto | .. | E. |
| 6 | 29.041 | 100.8 | 101.5 | 79.6 | 99.4 | 83.0 | 91.2 | Clear | .. | W. |
| 7 | 29.033 | 100.0 | 101.0 | 79.8 | 100.8 | 85.5 | 93.15 | Hazy [scatd. | .. | N.W. |
| 8 | 29.125 | 97.3 | 98.5 | 79.6 | 98.8 | 82.0 | 90.4 | ~ very few | .. | N.W. |
| 9 | 29.145 | 96.0 | 96.0 | 78.0 | 99.0 | 81.0 | 90.0 | ~ scattered | .. | N.W. |
| 10 | 29.161 | 96.0 | 95.8 | 76.6 | 94.9 | 79.0 | 86.95 | Clear | .. | W. |
| 11 | 29.133 | 96.4 | 96.2 | 76.6 | 95.1 | 80.0 | 87.55 | Ditto | .. | N.W. |
| 12 | 29.195 | 97.0 | 96.6 | 76.0 | 97.0 | 80.0 | 88.5 | Ditto | .. | N.W. |
| 13 | 29.137 | 97.0 | 97.2 | 76.5 | 96.0 | 80.0 | 88.0 | ~ all over | .. | W. |
| 14 | 29.237 | 99.0 | 99.0 | 76.0 | 97.9 | 83.9 | 90.9 | Ditto | .. | N.W. |
| 15 | 29.245 | 99.4 | 98.6 | 75.0 | 98.0 | 82.8 | 90.4 | Clear | .. | N.W. |
| 16 | 29.237 | 98.5 | 98.7 | 77.5 | 97.5 | 82.8 | 90.15 | ~ towards E. | .. | .. |
| 17 | 29.251 | 97.6 | 97.9 | 74.0 | 98.0 | 82.3 | 90.15 | ~ scattered | .. | N.W. |
| 18 | 29.301 | 96.3 | 93.7 | 76.0 | 95.3 | 81.0 | 88.15 | ~ all over | .. | N.W. |
| 19 | 29.263 | 95.0 | 94.5 | 75.6 | 95.3 | 82.0 | 88.65 | ~ scattered | .. | N.W. |
| 20 | 29.267 | 94.0 | 92.5 | 76.5 | 92.0 | 81.0 | 86.5 | Ditto | .. | N.W. |
| 21 | 29.279 | 94.0 | 92.4 | 76.1 | 92.0 | 81.5 | 86.75 | Ditto | .. | N. |
| 22 | 29.295 | 94.1 | 94.8 | 75.4 | 93.8 | 81.3 | 87.55 | Ditto | .. | N.W. |
| 23 | 29.297 | 96.7 | 97.4 | 76.2 | 95.8 | 81.5 | 88.65 | Ditto | .. | N. |
| 24 | 29.237 | 94.7 | 98.2 | 74.5 | 96.5 | 82.0 | 89.25 | ~ ditto | .. | N. |
| 25 | 29.235 | 98.0 | 98.5 | 75.0 | 97.3 | 82.8 | 90.55 | ~ in horz. to- | .. | N. |
| 26 | 29.175 | 99.1 | 98.0 | 79.0 | 97.0 | 83.0 | 90.0 | Clear [wards E. | .. | E. |
| 27 | 29.111 | 98.6 | 97.9 | 75.0 | 97.6 | 83.0 | 90.3 | Ditto | .. | .. |
| 28 | 29.171 | 97.6 | 98.0 | 72.9 | 97.9 | 81.0 | 89.45 | Ditto | .. | .. |
| 29 | 29.191 | 95.5 | 96.1 | 78.5 | 98.4 | 82.8 | 90.6 | Ditto | .. | N.W. |
| 30 | 29.237 | 98.5 | 98.5 | 78.4 | 97.2 | 81.6 | 89.4 | Ditto | .. | N.W. |
| Mean. | 29.189 | 96.63 | 96.53 | 77.48 | 96.50 | 82.06 | 89.28 | .... | .. | .. |

Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of October, 1853.

Maximum pressure observed at 9.50 A. M.

| Date. | Barometer. | Temperature. | | | Maximum and Minimum. | | | Aspect of the Sky. |
|-------|------------|--------------|---------|-----------|----------------------|----------|------------------------|--------------------|
| | | Of Mercury. | Of Air. | Wet Bulb. | Maximum. | Minimum. | Direction of the Wind. | |
| 1 | 29.327 | 89.0 | 89.7 | 72.1 | .. | .. | N. E. | Clear |
| 2 | 29.265 | 93.0 | 93.6 | 71.0 | .. | .. | W. | Ditto |
| 3 | 29.325 | 90.8 | 91.9 | 74.4 | .. | .. | N. E. | Ditto |
| 4 | 29.343 | 90.5 | 90.5 | 74.2 | .. | .. | N. E. | ~ scattered |
| 5 | 29.311 | 88.0 | 88.3 | 79.5 | .. | .. | N. E. | ~ all over |
| 6 | 29.299 | 79.0 | 78.2 | 75.0 | .. | .. | E. | Ditto |
| 7 | 29.191 | 75.5 | 75.3 | 74.3 | .. | .. | E. | Raining |
| 8 | 29.319 | 77.0 | 77.2 | 74.5 | .. | .. | W. | ~ all over |
| 9 | 29.411 | 76.4 | 76.6 | 74.0 | .. | .. | N.W. | Ditto |
| 10 | 29.505 | 75.5 | 76.0 | 72.0 | .. | .. | N.W. | ~ scattered |
| 11 | 29.573 | 78.9 | 79.6 | 73.0 | .. | .. | N.W. | Clear |
| 12 | 29.445 | 82.5 | 83.3 | 70.0 | .. | .. | S.W. | Ditto |
| 13 | 29.447 | 82.2 | 82.5 | 68.1 | .. | .. | W. | Ditto |
| 14 | 29.497 | 80.0 | 80.6 | 68.2 | .. | .. | N.W. | Ditto |
| 15 | 29.549 | 80.0 | 81.0 | 66.0 | .. | .. | N.W. | Ditto |
| 16 | 29.580 | 81.2 | 81.7 | 68.0 | .. | .. | W. | Ditto |
| 17 | 29.599 | 82.5 | 83.0 | 66.0 | .. | .. | W. | Ditto |
| 18 | 29.569 | 81.6 | 82.6 | 66.4 | .. | .. | N. | Ditto |
| 19 | 29.531 | 78.4 | 79.3 | 63.0 | .. | .. | N.W. | Ditto |
| 20 | 29.507 | 78.2 | 79.0 | 64.0 | .. | .. | W. | Ditto |
| 21 | 29.527 | 79.0 | 80.2 | 63.3 | .. | .. | W. | Ditto |
| 22 | 29.499 | 84.6 | 85.0 | 63.4 | .. | .. | W. | Ditto |
| 23 | 29.517 | 79.6 | 80.6 | 66.6 | .. | .. | W. | Ditto |
| 24 | 29.559 | 79.5 | 81.0 | 67.4 | .. | .. | W. | Ditto |
| 25 | 29.529 | 79.6 | 80.7 | 67.0 | .. | .. | S.W. | Ditto |
| 26 | 29.511 | 81.0 | 82.5 | 64.8 | .. | .. | W. | Ditto |
| 27 | 29.637 | 80.5 | 81.5 | 67.0 | .. | .. | S. | Ditto |
| 28 | 29.635 | 79.8 | 80.9 | 66.0 | .. | .. | W. | Ditto |
| 29 | 29.599 | 79.0 | 80.9 | 66.0 | .. | .. | N.W. | Ditto |
| 30 | 29.593 | 82.2 | 83.0 | 67.0 | .. | .. | W. | Ditto |
| 31 | 29.617 | 81.5 | 82.8 | 69.0 | .. | .. | N.W. | Ditto |
| Mean. | 29.482 | 81.5 | 82.2 | 69.1 | .. | .. | .. | .... |

Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of Oct. 1853.

Observations at apparent Noon.

| Date. | Barometer. | Temperature. | | | Maximum and Minimum. | | | Aspect of the Sky. |
|-------|------------|--------------|---------|-----------|----------------------|----------|------------------------|--------------------|
| | | Of Mercury. | Of Air. | Wet Bulb. | Maximum. | Minimum. | Direction of the Wind. | |
| 1 | 29.289 | 93.0 | 93.6 | 72.4 | .. | .. | N. E. | Few scattered |
| 2 | 29.301 | 95.2 | 95.5 | 71.5 | .. | .. | W. | Clear |
| 3 | 29.245 | 93.0 | 93.3 | 75.0 | .. | .. | N. E. | Ditto |
| 4 | 29.307 | 93.0 | 93.5 | 74.8 | .. | .. | N. E. | ^ scattered |
| 5 | 29.273 | 90.0 | 88.7 | 79.2 | .. | .. | N. E. | ^ all over |
| 6 | 29.259 | 80.1 | 79.5 | 75.8 | .. | .. | E. | Ditto |
| 7 | 29.173 | 75.9 | 75.5 | 73.5 | .. | .. | E. | Raining |
| 8 | 29.337 | 78.9 | 78.6 | 75.5 | .. | .. | W. | ^ all over |
| 9 | 29.393 | 78.0 | 78.5 | 74.2 | .. | .. | N. W. | Ditto |
| 10 | 29.489 | 79.9 | 80.0 | 72.9 | .. | .. | N. W. | ^ scattered |
| 11 | 29.503 | 81.0 | 81.6 | 73.0 | .. | .. | W. | Clear |
| 12 | 29.415 | 85.5 | 85.5 | 70.5 | .. | .. | N. W. | Ditto |
| 13 | 29.421 | 85.2 | 85.5 | 68.1 | .. | .. | W. | Ditto |
| 14 | 29.479 | 83.1 | 83.5 | 69.0 | .. | .. | N. W. | Ditto |
| 15 | 29.531 | 82.5 | 83.5 | 66.5 | .. | .. | N. W. | Ditto |
| 16 | 29.567 | 84.0 | 85.5 | 68.3 | .. | .. | W. | Ditto |
| 17 | 29.559 | 85.0 | 85.6 | 66.8 | .. | .. | W. | Ditto |
| 18 | 29.551 | 83.5 | 84.3 | 67.9 | .. | .. | N. W. | Ditto |
| 19 | 29.511 | 83.0 | 84.0 | 63.4 | .. | .. | W. | Ditto |
| 20 | 29.499 | 84.1 | 85.4 | 64.6 | .. | .. | W. | Ditto |
| 21 | 29.503 | 84.8 | 86.0 | 64.1 | .. | .. | W. | Ditto |
| 22 | 29.469 | 86.0 | 87.2 | 64.7 | .. | .. | N. W. | Ditto |
| 23 | 29.505 | 85.0 | 86.1 | 67.0 | .. | .. | W. | Ditto |
| 24 | 29.517 | 83.8 | 84.5 | 69.7 | .. | .. | W. | Ditto |
| 25 | 29.505 | 84.0 | 84.7 | 67.8 | .. | .. | W. | Ditto |
| 26 | 29.493 | 84.8 | 85.5 | 65.5 | .. | .. | W. | Ditto |
| 27 | 29.607 | 84.0 | 85.0 | 67.2 | .. | .. | W. | Ditto |
| 28 | 29.605 | 86.0 | 87.2 | 66.1 | .. | .. | N. W. | Ditto |
| 29 | 29.557 | 85.0 | 86.4 | 67.0 | .. | .. | N. W. | Ditto |
| 30 | 29.559 | 84.0 | 85.0 | 67.0 | .. | .. | W. | Ditto |
| 31 | 29.559 | 84.0 | 85.0 | 67.0 | .. | .. | N. W. | Ditto |
| Mean. | 29.450 | 84.7 | 85.3 | 69.5 | .. | .. | .. | .... |

Meteorological Register kept at the Office of the Secretary to Government N. W. P. Agra, for the Month of Oct. 1853.

Minimum pressure observed at 4 p. m.

| Date. | Barometer. | Temperature. | | | Maximum and Minimum. | | | Aspect of the Sky. | Rain Gauges. | |
|-------|------------|--------------|---------|-----------|----------------------|----------|-------|--------------------|------------------------------|------------------------|
| | | Of Mercury. | Of Air. | Wet Bulb. | Maximum. | Minimum. | Mean. | | 3 Ft. 2 In. from the ground. | Direction of the Wind. |
| 1 | 29.171 | 96.0 | 96.4 | 72.7 | 98.2 | 79.0 | 88.6 | Few — scattered | .. | E. |
| 2 | 29.237 | 96.8 | 97.1 | 71.8 | 96.0 | 79.0 | 87.5 | Clear | .. | W. |
| 3 | 29.251 | 96.7 | 96.9 | 73.4 | 95.5 | 86.5 | 91.0 | ^ scattered | .. | N. E. |
| 4 | 29.247 | 95.0 | 95.4 | 74.4 | 94.0 | 86.5 | 90.25 | Ditto | .. | N. E. |
| 5 | 29.263 | 93.0 | 93.4 | 82.7 | 94.0 | 89.0 | 91.5 | ^ all over | .. | N. E. |
| 6 | 29.241 | 83.5 | 84.0 | 76.0 | 84.0 | 81.0 | 82.5 | .... | .. | E. |
| 7 | 29.101 | 76.4 | 75.7 | 74.5 | 76.6 | 74.0 | 75.3 | Raining | .. | E. |
| 8 | 29.339 | 77.8 | 77.5 | 74.9 | 79.0 | 73.5 | 76.25 | ^ all over | .. | W. |
| 9 | 29.371 | 78.8 | 79.1 | 74.8 | 80.5 | 73.9 | 77.2 | Ditto | .. | W. |
| 10 | 29.443 | 83.8 | 84.0 | 74.5 | 82.2 | 69.0 | 75.6 | ^ scattered | .. | N.W. |
| 11 | 29.389 | 87.2 | 87.6 | 73.6 | 85.6 | 68.8 | 77.2 | Clear | .. | W. |
| 12 | 29.381 | 89.3 | 89.6 | 70.0 | 87.9 | 71.2 | 79.55 | Ditto | .. | N.W. |
| 13 | 29.387 | 90.4 | 90.0 | 70.9 | 88.9 | 71.5 | 80.2 | Ditto | .. | W. |
| 14 | 29.159 | 88.0 | 87.2 | 67.0 | 88.2 | 68.9 | 78.55 | Ditto | .. | .. |
| 15 | 29.503 | 87.0 | 86.7 | 66.6 | 88.0 | 69.0 | 78.5 | Ditto | .. | N.W. |
| 16 | 29.527 | 88.4 | 88.6 | 68.7 | 88.5 | 69.0 | 78.75 | Ditto | .. | N.W. |
| 17 | 29.525 | 88.5 | 88.8 | 68.0 | 87.4 | 73.6 | 80.5 | Ditto | .. | W. |
| 18 | 29.489 | 89.0 | 89.0 | 68.9 | 87.6 | 73.0 | 80.3 | Ditto | .. | N.W. |
| 19 | 29.429 | 88.8 | 88.2 | 65.0 | 87.0 | 67.0 | 77.0 | Ditto | .. | W. |
| 20 | 29.453 | 89.5 | 89.9 | 65.0 | 87.2 | 67.3 | 77.25 | Ditto | .. | N.W. |
| 21 | 29.455 | 90.0 | 90.5 | 64.5 | 88.2 | 67.2 | 77.7 | Ditto | .. | W. |
| 22 | 29.435 | 91.1 | 91.4 | 68.0 | 89.4 | 67.0 | 78.2 | Ditto | .. | N.W. |
| 23 | 29.467 | 90.0 | 90.6 | 68.3 | 88.9 | 71.0 | 79.95 | Ditto | .. | W. |
| 24 | 29.465 | 89.5 | 90.1 | 69.1 | 88.0 | 70.5 | 79.25 | Ditto | .. | N.W. |
| 25 | 29.455 | 90.0 | 90.5 | 69.0 | 88.5 | 70.5 | 79.5 | Ditto | .. | W. |
| 26 | 29.459 | 90.8 | 91.6 | 69.0 | 89.2 | 69.9 | 79.55 | Ditto | .. | W. |
| 27 | 29.569 | 90.5 | 91.0 | 67.9 | 89.4 | 73.5 | 81.45 | Ditto | .. | S. |
| 28 | 29.553 | 91.0 | 91.3 | 67.0 | 90.5 | 71.0 | 80.75 | Ditto | .. | N.W. |
| 29 | 29.507 | 90.3 | 90.6 | 68.0 | 89.6 | 71.0 | 80.3 | Ditto | .. | N.W. |
| 30 | 29.477 | 88.5 | 89.4 | 67.5 | 88.4 | 69.0 | 78.7 | Ditto | .. | W. |
| 31 | 29.527 | 88.0 | 88.0 | 70.0 | 87.5 | 68.5 | 78.0 | Ditto | .. | N.W. |
| Mean. | 29.406 | 88.8 | 89.1 | 70.4 | 88.2 | 72.9 | 80.54 | ... | .. | .. |

Errata in Vol. XXII. for 1853, (Nos. 3, 4 & 5) of the Journal of the Asiatic Society, in the paper entitled "Report on the Geological Structure, &c. of the Salt Range in the Punjaub, &c."

| Page | line | |
|------|------|-------------------------------------|
| 258 | 18, | for Soda read Lead. |
| 334 | 30, | for Likesur read Sikesur. |
| 335 | 35, | for thin read their. |
| " | 37, | for Kuthee read Kotkee. |
| 336 | 2, | for Chotab read Chotah. |
| " | 3, | for Soan read Loon. |
| " | " | for Marie read Maree. |
| " | 6, | for Ral read Rol. |
| " | 25, | for ditto read ditto. |
| 337 | 17, | for Jumsan read Jumsau. |
| " | 20, | for apparence read appearance. |
| " | 27, | for devoid read derived. |
| 338 | 8, | for Jumsan read Jumsau. |
| " | 27, | for Cents. read Cwts. |
| " | 29, | for Kathee read Kotkee. |
| 339 | 3, | for Jumsan read Jumsau. |
| " | 16, | for Kathee read Kotkee. |
| " | 25, | for Jumsan read Jumsau. |
| 340 | 5, | for ditto read ditto. |
| 341 | 8, | for clay sandstone read claystone. |
| " | 16, | for sandstone read sandstones. |
| 342 | 15 | for Shob read Shah. |
| " | 33, | for Rhtlum read Ruttibun. |
| 343 | 11, | for Kurrah read Keurah. |
| " | 14, | for Taber read Toher. |
| " | 34, | for Demdhote read Dimdhote. |
| 344 | 13, | for Kurrumea Wou read Kurrumea Wan. |
| " | 28, | for Kathee read Kotkee. |
| " | 32, | for ditto read ditto. |
| 345 | 3, | for ditto read ditto. |
| " | 29, | insert a point after coal. |
| " | " | for small read Small. |
| 346 | 10, | for Kathee read Kotkee. |
| " | 23, | for ditto read ditto. |
| 347 | 1, | for ditto read ditto. |
| " | 9, | for Brattenberg read Beattenberg. |
| " | 16, | for ditto read ditto. |
| 349 | 2, | for coating read luting. |
| " | 14, | for Fascialites read Fasciolites. |
| " | 16, | for Aeritina read Neritina. |
| 350 | 14, | for when read where. |
| " | 29, | for Gharigulla read Ghorigulla. |
| " | 34, | for ditto read ditto. |
| " | " | for Bulerala read Bukrala. |
| 351 | 7, | for Sam read Sone. |
| " | 35, | for identified read identical. |
| 352 | 3, | for Mochpoor read Mochpoora. |
| 354 | 2, | for Buhrala read Bukrala. |
| 355 | 13, | for Kuttree read Puttree. |
| " | 33, | for with read into. |
| 357 | 4, | for Carapax read Carapace. |
| " | 13, | for endogenous read exogenous. |
| " | 24, | for eastward read east. |
| " | 36, | for formed read forced. |
| 358 | 15, | for axis read axes. |
| " | 24, | for Sekesur read Sikesur. |

| Page | line | |
|-------|------------|--|
| „ | 33, | for 2113 feet. Above read 2113 feet above. |
| „ | 34, | after Maree insert a point. |
| „ | „ | for looking read looking, and omit ; after summit, |
| 360 | 11, | for grove read zone. |
| „ | 15, | after mountains insert would. |
| 363 | 17, | for alluvion read alluvium. |
| „ | 22, | for Siberian read Silurian. |
| „ | 24, | for hard read hand. |
| 366 | 36, | for oolitics read oolites. |
| 367 | 2, | for 18° read 180°. |
| „ | 5, | for Kothce read Kotkee. |
| 368 | 15, | for Kurum read Koorum. |
| „ | 25, | for fossil read fossils. |
| 445 | 8, | for pelu read peelu. |
| „ | „ | for mud read mudar. |
| „ | 13, | for as read so. |
| 446 | 15 and 16, | for detritic read detritic. |
| • 447 | 9, | for vein read veins. |
| „ | 31, | for Gurjok read Garjak. |
| 448 | 2, | for Leyden read 'lyden. |
| „ | 5, | for Dhur read 'zhar. |
| „ | 8, | for Soue read 'Sone. |
| „ | 9, | for Moosoul read Moosral. |
| „ | 19, | for 4,493 read 493. |
| „ | 40, | for render read renders. |
| 449 | 9, | for Kothce read Kotkee. |
| „ | 19, | for Lingasun read Singasun. |
| „ | 22, | for Arub read Amb. |
| 451 | 24, | for rock read rack. |
| 452 | 18, | for Deooman Rocks read Devonian Rocks in italics |
| „ | 30, | for Kerah read Keurah. |
| 453 | 11, | for Mukrah read Mukrach. |
| „ | 20, | for Arub read Amb. |
| „ | 25 and 26, | for glame read glance. |
| „ | 34, | after Agate insert |
| „ | 34 and 35, | Carboniferous Rocks, &c. in italics. |
| 454 | 17, | Oolitic Secondary Rocks, &c. in italics. |
| „ | 21, | for Shah read Shales. |
| „ | 41, | for Intana read Jutana. |
| 456 | 12, | after Lower Silurian or Cambrian Rocks insert |
| 457 | 13, | for maps read mass. |
| „ | 25, | for Kular read Kulan. |
| „ | 33, | for ditto read ditto. |
| 458 | 4, | for Hloona read Hoon. |

Chuprah, 26th January, 1854.

A. FLEMING.



ASIAN LITH. PHOTO. T. BLANK. N. 1897/8



ASIAN LITH. PHOTO. T. BLANK. N. 1897/8

Carus canadensis

JOURNAL
OF THE
ASIATIC SOCIETY OF BENGAL,

EDITED BY
THE SECRETARIES.

VOL. XXII.
Nos. I. to VII.—1853.

"It will flourish, if naturalists, chemists, antiquaries, philologers, and men of science, in different parts of *Asia*, will commit their observations to writing, and send them to the Asiatic Society at Calcutta. It will languish if such communications shall be long intermitted; and it will die away if they shall entirely cease."—Sir Wm. Jones.

CALCUTTA:
PRINTED BY J. THOMAS, BAPTIST MISSION PRESS.
1854.

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OF THE

No. IV. 1856.

*A brief Notice of the Subhāshita Ratna Nidhi of Śāskya Paṇḍita, with
extracts and translations by the late M. A. CSOMA DE KÖRÖSI.*

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- [illegible]

V. EVIL PRACTICES (དམ་ཕྱོད).

86. When a cunning person speaks fair, it is for his own interest not out of respect for others ; the laughing voice of the night-bird is an ill omen, it proceeds not from joy.

87. If a man grows too famous, on account of his great advancement, though he endures for a while, yet at last he is destroyed. The ass that was covered with the skin of a leopard, after having eaten up one man's standing corn, was slain by another.

88. They that have chosen a wicked man for their king, they that dwell in a house whose upper roof is ruinous, or under a rock whose summit threatens to fall, are in continual fear.

- 89 གལ་ ཏེ་ རྒྱ་པ་ ཡོད་ན་ ཡང་ །
 མྱེ་བོའི་ རང་ བཞིན་ དན་པ་ ཟུང་ །
 རྩལ་ རྩལ་ རྩེ་ རྩལ་ མཁོ་ རྩེན་ཡང་ །
 མཁའ་ པ་ རྩེ་ རྩེན་ ཡང་ རྩེ་ རྩེན་ ॥
- 90 རྩེན་པ་ པས་ ཡོན་ ཏན་ ཉམས་ འཕྲུལ་ཞིང་ །
 འཕྲུལ་ པས་ དེ་ རྩེ་ ཉམས་ པར་ཕྱེད་ །
 གཤམ་ འཕྲུལ་ རྩེན་ཕྱེད་ རྩེན་ རྩེན་ཏན་ །
 རྩེ་དཔོན་ ཉམས་ པར་ འཕྲུལ་ པ་ ཡན་ ॥
- 91 ཡན་ པར་ རྩེ་པ་ དཔོན་ པ་ རྩེ་ །
 དེ་དཔ་ ལས་ རྩེད་ ཉན་ པ་ དཔོན་ །
 རྩེན་ པ་ མཁའ་ པ་ རྩེད་ དཔའ་ རྩེ་ །
 དེ་ ཡི་ རྩེན་ བཞིན་ རྩེད་ པ་ རྩེད་ ॥
- 92 མ་ བཞིན་པ་ པར་ རྩེ་ རྩེ་ ལ་ ཡང་ །
 ཡོད་ རྩེ་ པ་ དཔ་ བཞིན་ མི་ཕྱེད་ །
 བཞིན་ ཡམ་ པ་ ལ་ རྩེན་ རྩེད་ དང་ །
 རྩེ་ བཞིན་ པ་ ལ་ དཔའ་ རྩེད་ མང་ ॥

89. Though a man is learned, but if he is by nature b., avoid him. Though a venomous serpent has a gem on his head, what wise man would take him into his bosom?

90. By arrogance, good qualities are diminished; by lust modesty is obfuscated. By a continual railing at his servants, the master loses his authority.

91. It is a rare thing to find one who can give good advice, but it is more rare to find one who would listen (to advice)—difficult it is to find an expert physician, few are they that would act according to his advice.

92. Judge not before you have examined. It often happens that an upright man, if he loses his cause, is thought to be a knave. He that acts with discretion, has many enemies.

- 93 དན་ པ་ རི་ ལྷུ་ བཅོས་ ལྷུ་ གྲང་ །
 རང་ བཞིན་ བཟང་ པོ་ འབྱུང་ མི་ སྤོང་ །
 སོལ་ བ་ འབད་ དེ་ བསྐྱུ་ ན་ ཡང་ །
 ཁ་ དོན་ རྒྱུ་ པོ་ མི་ སྤོང་ དོ་ ॥
- 94 གཞུང་ དན་ རྩ་ལ་ གཅེས་ འཛིན་པ་ །
 མཛོལ་ བཤེས་ ཡིན་ གྲང་ ཡིད་མི་ བདྲན་ །
 ཆེན་ པོ་ རྩམས་ ལ་གསུམ་ རོས་ན་ །
 གཞེན་ ལྱིས་ བསྐྱུ་ པར་ ལུས་ པ་ མང་ ॥
- 95 གནོད་ པའི་ མཛོན་མ་ ཁར་ འབྱིན་ པའི་ །
 དམ་ བ་ དེ་ རྒྱ་ གཞེམ་ པ་ སྤོང་ །
 ཡན་ པའི་ རྒྱུ་ གཤམས་ ཁར་ འབྱིན་ པའི་ །
 དམ་ བ་ དེ་ རྒྱ་ རི་ ལྷུ་ གཞེམ་ ॥
- དན་ སྤོང་ བཅོས་པ་ཉེ་ 5.
- 96 བདག་ ཉིད་ དཔོན་ཏུ་ བསྐྱུ་ ལྷུ་ན་ །
 དེ་ཡི་ རྩ་བ་ ཤེས་པ་ དཀོན་ །

93. In whatever manner you fashion a bad man, it is impossible to make his nature good—you may wash the coal with all the water you will, but it is impossible to give it a white colour.

94. An ill-principled man, who is fond of riches, though he be a friend, is not of a firm mind. There are many that have been destroyed by their own relations, in consequence of their having been bribed by the great.

95. It is easy to overcome those enemies that announce their plans of lusting (or injuring). But how are those to be subdued who advise a salutary retreat?

VI. THE NATURAL WAY OR MANNER (OF MEN'S ACTIONS),

(རང་བཞིན་གྱི་རྒྱུ)

96. If one should happen to be chosen for a ruler, it is seldom that he could know what was to be done. We may look on others

གཞན་ ལ་ ལྷ་ བའི་ མིས་ ཡོད་ ཅུང་ །

འད་ ཁྱིམ་ ལྷ་ན་ མེ་ལོང་ དགས་ ॥

97 རྒྱལ་པོ་ འཕ་ ཅུ་ མང་ མོད་ ཅུང་ །

ཆེས་ བཞིན་ སྤྱོད་པ་ སིན་ ཅུ་ རྒྱུང་ །

མཆུ་ ལ་ ལྷ་ གནས་ མང་ ན་ ཡང་ །

འོད་ གསལ་ ཁྱི་ སྒྲ་ ལྷ་སྒྲ་ མེད་ ॥

98 གང་ ཞིས་ གནོད་ པར་ ཐུད་ རྩས་པ་ །

དེ་ཡིས་ ཡན་པུང་ ཐུད་ པར་ རྩས་ །

མགོ་ བོ་ རྩད་པན་ བཅིདས་ པ་ཡི་ །

རྒྱལ་པོས་ རྒྱལ་ སྤྱོད་ རྩིན་ པར་ རྩས་ ॥

99 སྒོན་ པོ་ སྒོ་ ལྷན་ རང་པོ་ ཡིས་ །

རྩེ་དང་ འབངས་ གྱི་ དོན་ ལྷན་ སྒྲུབ་ །

མདུ་ ནི་ མཆས་ པས་ འཕངས་ གྲུང་ན་

གང་ལ་ གདགས་ པ་ སོག་ པ་ ལྷར་ ॥

100 མང་ པོ་ གཅིག་ ཅུ་ སྒོ་ མཐུན་ན་ །

ལྷོགས་ རྒྱུང་ གིས་ ཅུང་ དོན་ ཆེན་ འབྲུབ་ །

'with our own eyes, but we want a looking-glass, when we wish to view ourselves.

97. Though there be very many kings, yet there are very few of them, that govern with righteousness. Though there is many a body of the gods in the heaven, yet there are none so brilliant in light as the sun and moon.

98. He that can do mischief, can do also good. A crowned monarch may bestow on one a whole kingdom.

99. By an upright intelligent minister both the Sovereign and the subjects can be rendered, in all respects, happy. An arrow, when shot by a dexterous man, strikes the mark aimed at.

100. If many consent together, great things may be performed

- བྱེད་ ཆགས་ བྱེད་མོ་ རྩོམས་ འཇམ་ པས །
 སེང་ གེའི་ ལྷ་མྱ་ བསང་ ཅེས་ བཤ །
 101 རྒྱམ་ བྱས་ སྦྱ་ བ་ དྲ་ བའི་ མི །
 མཐུ་ རྩེབས་ རྩན་ ཡང་ གྱུང་ པར་ འབྱུང །
 སྒང་ པོ་ སྒྱ་མུ་ རྩེབས་ རྩན་ ཡང་ །
 སྒང་ རྩི་ རྩང་ རྩས་ བན་ བཞིན་ འཁྱེལ །
 102 ད་ རྩལ་ རྩལ་ བ་ རྩེ རྩེས་ ན །
 རྩན་ པོ་ རྩམས་ རྩང་ རྩལ་ རྩལ་ རྩན །
 རྩད་ རྩལ་ རྩན་ རྩལ་ རྩལ་ རྩང་ ཡང་ །
 རྩ་ རྩན་ རྩན་ པོ་ རྩལ་ རྩལ་ རྩན །
 103 རྩན་ པོ་ ད་ རྩལ་ རྩལ་ རྩལ་ རྩལ་ རྩལ །
 རྩན་ པས་ ད་ རྩལ་ རྩལ་ རྩལ་ རྩལ །
 རྩན་ རྩན་ རྩལ་ རྩལ་ རྩལ་ རྩལ་ རྩལ །
 རྩལ་ རྩལ་ རྩལ་ རྩལ་ རྩལ་ རྩལ །
 104 རྩལ་ རྩལ་ རྩལ་ རྩལ་ རྩལ་ རྩལ །
 རྩལ་ རྩལ་ རྩལ་ རྩལ་ རྩལ་ རྩལ །

even by little forces. It is said: a lion's whelp was killed by an assembled multitude of ants, (or pismires).

101. He that is indolent and deficient in exertion, though he be strong and robust, shall decay. An elephant, though he be very strong, is treated, by his little driver, as a slave.

102. When haughtiness is carried too far, even great men will be overpowered: though the white tortoise (fish) has only a little body, yet is he the destroyer of a large crocodile.

103. The great have no need to be arrogant; the arrogance of the mean is futile. A gem wants no recommendation; none would be a counterfeit jewel, though it be highly extolled (or praised).

104. Men, commonly, are injured by men of the like kind

གི་མ་ལོང་ རྒྱུད་ བླ་ འཕྲ་བ་ན།

[illegible]

105 ཡན་ཐུང་ རྩ་ བོ་ ཡན་ཡང་ པལྟེན །
 གཞོན་ ཐུང་ ཉ་ ར་ ཡན་ཡང་ སྤང་ །
 རྩ་མཆོའི་ རོང་ སྤ་ རྩ་ ཐུས་ ཉ་ །
 རྩང་ པའི་ རྩམས་ སྤ་ ཐུས་ འཁྱེན །

106 ཁང་ཙྰ་ རྒྱང་ཐད་ འབྲེལ་ འབྲུམ་ན།
 ཡི་ཤེས་ དེགས་ པའི་ རྩོམ་ འབྲུམ་ ཉེན།
 རྩ་ ཡིས་ ཡངས་སུ་ གང་ པའི་ ཆེ།
 སྟན་ རྩོམས་ གཞུ་ ཞིང་ འབྲུག་སྤྱི་ སྤྱོད་ ༥

107
 ཡེན་ ཏན་ གུན་ ལྷན་ རལོན་ པ་ལྟེ།
 ཡེན་ ཏན་ རི་ཡང་ མེད་པའང་ རལན།
 རྩེན་དང་ ཡན་ཏན་ འཕེལ་པ་ ལམ།
 ཡེན་ཏན་ བསྟེ་ཆེ་ མཁའ་པལ་ བསྟེན།

(tribe) with themselves. By the appearing of sunshine, all other luminous bodies are offuscated.

105. Keep him from whom you derive advantage, though he is your enemy. Reject him that hurts you, though he be your relation. Buy, at whatever price, a jewel, brought from sea. Drive out by medicine, the disease that is in your inward parts.

106. When a man has some wealth within, he shows it with pride in his externals. When the clouds are full of water, then they move and make a noise.

107. It is rare to find one who is all perfection; but it is rare also to find one who is destitute of every good quality. A wise man will keep him who leans more to virtue than to vice.

- 108 དང་པོ་ ཞིང་ གས་ དག་ བོད་དང་ །
 མཛོལ་ག་ ཞིང་ཙ་ དེས་ པ་ མེད་ །
 ཁ་ རས་ མ་ ཉུ་ རྩག་ཅ་ འཁྱུར་ །
 རྩག་ རྩང་ གས་ན་ རྩག་ཙ་ འཁྱུར་ ॥
- 109 རང་ དབང་ གམས་ ཅད་ བད་ བ་ཉེ་ །
 གཞན་ དབང་ གམས་ ཅད་ རྩག་ བལྟལ་ ཡིན་ །
 རྩག་ མེད་བ་ན་ རྩད་ གལ་ ཉེ་ །
 དམ་ བཅས་ པ་ནི་ འཆིང་ བལྟལ་ ॥
- 110 གང་ན་ ཡིན་ཏན་ རྩག་ རྩག་ ཡང་ །
 ཆ་ རྩགས་ དན་ན་ རྩག་ཉེས་ བཞེས་ །
 རྩགས་ རྩལ་ མཁས་ རྩང་ རྩ་མེད་པས་ །
 འདབ་ ཆགས་ རྩག་ཉེས་ རྩངས་ ཞེས་ལག ॥
- 111 རྩག་པ་ རྩ་བ་ རྩང་ན་ མཛོལ་ །
 རྩལ་ པ་ རྩག་ཅ་ འཁྱུར་ ག་ མཛོལ་ །
 རྩ་མ་ རྩ་འམ་ མཛོལ་ན་ མཛོལ་ །
 གེར་ ཆེན་ དགན་ ག་ རྩ་དང་ ཆེ ॥

108. It is doubtful at first, whether a person is our enemy or friend. Meat, if not properly digested, becomes poison; but poison also, if one knows how to use it, may turn to medicine.

109. To be one's own master, is always counted as happiness; to be in the power of others, is always held as misery. Common things are the cause of quarrels. We are bound, if we have promised a thing.

110. You may have, inwardly, all good qualities, but, if you have not a proper dress, you are despised by all. Though the bat is a prudent bird, yet since he has no feather, it is said, he is rejected by all winged animals.

111. A foolish man is pleasing, when he speaks but little; a king is dignified when he keeps secluded; imposing spectacles are beautiful if viewed at a far distance; a jewel, if rare, fetches a great price.

- 112 ཅ་ཅང་ ཐུམས་ པ་ ཆེ་ ཐགས་ན།
 དེ་ ཉིད་ འཇོན་ པའི་ རྒྱ་རྩ་ འབྱུང་།
 འཇིག་ རྟེན་ མྱོད་པ་ ཡལ་ ཆེར་ནི།
 འབྲེལ་བ་ ཉིད་ ལས་ འབྱུང་བ་ མང་ ॥
- 113 རིན་མུ་ མྱོད་པ་ ཆེན་ པོ་ ཡང་།
 ལྷན་ པར་ མཛོལ་ ཡའི་ རྒྱུར་ ལྷིད་ དེ།
 མྱོད་པ་ ཐུང་བའི་ མཐུར་ ཡལ་ ཆར་།
 འབྱུང་ པར་ འབྱུར་ བ་ མང་ ཡར་ མཐོང་ ॥
- 114 སྟེར་ ལྷ་ ཅན་ ཐུས་ རྟེན་ རྟེན་ རྟེན་ དང་།
 ཐུག་ དེས་ ཅན་ ཐུས་ ཐུགས་ པོ་ དང་།
 ཐོ་ དན་ ཅན་ ཐུས་ རྟེན་ པ་ རྟེན་།
 ཡོད་ ཐུང་ དགའ་ བ་ རྟེན་ མི་ རྟེན་ ॥
- 115 བཅུ་ ཆགས་ ཅན་ རི་ རྟེན་ཐུས་ དགའ་།
 ད་ཐུག་ ཅན་ རི་ བཅོལ་ པས་ མཐུ།
 ཐུན་ པོ་ རྟེན་ དང་ མཐུན་ པས་ དགའ་།
 དམ་ པ་ བདེན་ པར་ ཐུས་ པས་ མཐུ ॥

112. Too great affection is often the cause of violent animosity ; for the most part all the quarrels of men arise from a too great familiarity.

113. It may happen sometimes that a long debate becomes the cause of a greater friendship. We see often that commonly such as have disputed with (or against) one another, at last agree.

114. Though an avaricious man possesses wealth, an envious man his associate, an ill-minded man his learning, yet these can produce no pleasure.

115. Covetous men delight in wealth ; the ambitious are pleased when they hear their own praise ; a foolish man is glad when he finds one like himself ; the virtuous man rejoices when he hears the truth.

- 116 མྱེ་བའི་ངན་པའི་ཡོན་ཏན་དང་།
 སྒྲ་སྒྲུ་ཞན་པའི་རིག་པ་དང་།
 རྩ་དཔོན་ངན་པའི་བཀའ་རིན་ཅམས།
 གཞན་ལ་ཡན་པའི་གོ་སྐབས་དགའ་॥
- 117 གང་ལ་ནོར་ཡོད་སྒྲ་བ་མཛེས།
 ནོར་མེད་སྒྲ་བ་བདེན་ཡང་སྤོང་།
 མ་ལ་ཡ་ནས་བྱང་ལྟར་ན།
 སྤྱང་རྩམ་ཕལ་པའང་རྩམ་པ་ཆེ་॥
- 118 སྒྲ་མང་ཉེས་པ་འཛིན་པའི་རྒྱ།
 མི་སྒྲ་ཉེས་པ་སྤོང་བའི་གཤི།
 རེ་རྩི་སྒྲ་བ་བརྩེ་བ་མ་བྱུང་།
 འདྲ་བ་ཆགས་སྒྲུགས་པས་བདེ་བར་རྒྱ་॥
- 119 མི་གང་དག་ལ་གཡེ་མེད་པས།
 ཅམ་པ་ཁྱེན་མེད་ཡན་བཤགས་ན།
 དག་ཡང་དེ་ལ་གཡེ་མེད་པར།
 འཕྲད་པ་དངོས་པོའི་ཆེ་བ་ཡོན་॥

116. The qualifications of a bad man, the imperfect learning of a mighty speaker, the kindnesses of a bad master, seldom are useful to others.

117. If a man is opulent, his discourse is pleasing, an indigent, though he speaks the truth, is contemned. A piece of wood if brought from the Malaya mountain, though it is only a common one, has a high price.

118. Much talking is the cause of danger, silence is the foundation of avoiding misfortune. The talkative parrot is shut up in a cage, other birds, that are mute, fly at random.

119. When a man endeavours to be useful to an enemy in every respect, without hypocrisy and when the enemy also yields him without artifice, it shows a great character.

- 120 ལྷོ་བས་ བུ་མ་ཡིས་ ཁྱི་ ཅི་ ཡན།
 ལྷོ་བས་ ལྷོ་ དོན་ ལ་ ཁྱི་ ཅི་ དཔོན།
 དེས་ན་ ཐུ་བ་ བསྐྱབས་པ་ ལ།
 ཁྱི་ བ་ དོན་ མེད་ རྩ་ ལྷོ་ ཡན།
- 121 ལྷོ་བས་ བསྐྱབས་ན་ དཔོན་ ཡང་ འདྲ།
 ལྷོ་ མེད་ ལཱ་ལྷོ་ ཡང་ རྩ་ ལྷོ་ ཡན།
 བ་ཡི་ འོ་མ་ རྩ་ ཡན།
 བུ་ བཟང་ ཆད་ འདྲི་ བུ་ འདྲི།
- 122 ལྷོ་ ཐ་ ལྷོ་བས་ ཡི་ ལྷོ་བ་ཡི།
 ལྷོ་ བུ་ ལྷོ་ ལྷོ་ ལྷོ་ བུ་ ལྷོ།
 ལྷོ་མེད་ ལྷོ་ ལྷོ་ ལྷོ་ ལྷོ་ ལྷོ།
 ལྷོ་ ལྷོ་ ལྷོ་ ལྷོ་ ལྷོ་ ལྷོ་ ལྷོ།
- 123 ལྷོ་བས་ ལྷོ་ ལྷོ་བུ་ ལྷོ་ ལྷོ་ ལྷོ།
 ལྷོ་ ལྷོ་ ལྷོ་ ལྷོ་ ལྷོ་ ལྷོ།
 ལྷོ་ ལྷོ་ ལྷོ་ ལྷོ་ ལྷོ་ ལྷོ།
 ལྷོ་ ལྷོ་ ལྷོ་ ལྷོ་ ལྷོ་ ལྷོ།

120. What avails it, if an impotent man is angry? What need is there for a powerful to be angry? Therefore it is unreasonable to be angry for the performance of a thing,—it is but to mortify one's self.

121. With gifts you may gather about you the enemy also; if you give nothing, you are left by your own kindred also. When the cow's milk is deficient the good calf grows meagre, and becomes sorrowful.

122. A master that always treats with kindness his own domestics, may easily find servants and slaves. The geese, without being called, gather together to the lakes where there grow many lotuses.

123. When a man employs his riches, when one is gentle after having become learned, when a great man protects the lower class

- 128 རྟེན་པོ་ རྣམས་ གྱིས་ མཆོད་ ཅ་བ།
 དམན་ པ་ རྣམས་ གྱིས་ བཞིས་ པར་ འཁྱུར།
 དབང་ ལྷ་ས་ རྟེན་པོའི་ ལྷི་བོའི་ རྒྱན།
 རྩ་ བ་ ལྷ་ རིན་ རྩས་ ལུ་ ཉེད ༥༥ ༥༥
- 129 རིག་ པ་ རྩེགས་ བམ་ ལ་ གནས་ དང་།
 མ་ བསྐབས་ པ་ ཡི་ གསང་ ལྷ་གས་དང་།
 བརྟེན་ དན་ རན་ གྱིས་ བསྐབས་ པ་ རྣམས།
 དགོས་ བའི་ རྩས་ན་ བསྐྱུ་ བ་ མང་༥
- 130 རྩེ་ ཡག་ རྣམས་ ལ་ རི་ རིམ་ དང་།
 དམུས་ རོང་ བ་ ལ་ རྩོན་ མེ་ དང་།
 མ་ རྩ་ བ་ ལ་ ར་ རྩས་ དང་།
 ལྷན་ པོ་ རྣམས་ ལ་ ཆོས་ མི་ དགོས ༥༥
- 131 ཡོན་ རན་ རན་ དང་ གསེར་ བཟང་པོ།
 གཡལ་ ངོར་ དཔལ་ དང་ རི་ བཟང་པོ།
 རྣན་ པ་ མཁས་ དང་ རྒྱན་ བཟང་པོ།
 གང་རྩ་ རྒྱན་ པ་ དེ་རྩ་ རིན ༥༥

128. What is respected by the great, is contemned by the low people. The head ornament of the great Ishwosa is devoured by Chandra the Giant.

129. Science existing only in books ; Mantras not committed to memory ; those things which a forgetful man has learned, in the time of necessity often *deceive us*, are deceitful.

130. Sweet scent to dogs and hogs, a light to the blind, meat to indigestion, instruction to foolish men, are not required.

131. A talented (or well qualified) man, and good gold, a brave soldier, and a fine horse, a skilful physician and a beautiful ornament every where find their price (or all esteemed).

132 མོ་དང་བཤེན་ འབྲུག་ཡོད་ ཐུང་།
 དེ་ཡིས་བརྒྱུ་པ་པར་ མི་རྩས་གང་།
 དཔ་ངན་དམུང་ཚོགས་བརྒྱ་གཉིས་པོ།
 མུ་བསེང་མུ་ཡིས་བཅོམ་ཞེས་ཤོས་॥

133 རི་དང་རྒྱ་བོ་སྤང་པོ་རྩ།
 མེད་དང་ནོར་མུ་ལོད་ཐར་རྩ།
 མྱེས་པ་མུང་མེད་རིགས་གཅིག་ཁྱད་།
 མཚོག་དང་དམན་པའི་ཁྱད་པར་ཡོད་॥

134 ནོར་ཁྱི་མཚོག་ནི་ཁྱི་པ་ལྟེ།
 བདེ་བའི་མཚོག་ནི་སེམས་ལྟོད་པ།
 རྩན་ཁྱི་མཚོག་ནི་ཤོས་པ་ལྟེ།
 བྲགས་ཁྱི་མཚོག་ནི་མི་བསྐྱུ་བའོ།

135 ནོར་ཁྱིས་མ་གཏུངས་སྲ་ཡང་མེད།
 རིག་ཏུ་བདེ་བར་གདེངས་པ་སྲ།
 བདེ་དང་རྒྱག་བཞུག་ཤམས་ཅད་ཁྱད་།
 དཔུར་དམན་བཞིན་རྩ་རྩ་བར་འབྱུང་॥

རང་བཞིན་ཁྱི་རྒྱུ་བརྩིས་པ་ལྟེ། 6

132. If one has a good intellect and diligent application, what is it, that cannot be done by them? The Pandavas, they have I heard, have overcome the twelve troops of the dangerous enemy.

133. Though hills, rivers, elephants, horses, trees, guns, rays of light, storms, men and women, be all of the same kind (in their respective orders or classes) yet there is a difference of our being great (or high) and the other small (or mean).

134. The chief wealth consists in charity, and the greatest happiness in the tranquillity of mind. Hearing (or experience) is the most beautiful ornament; the best companion is he that desires not.

135. There is none that had never been afflicted with a disease for wealth—who enjoys always happiness? Pleasure and sorrow are always changing like summer and winter.

- 140 རྩེ་བོས་ བདག་ ལ་ གནོད་ ཐེད་ན།
 དེ་ ལ་ མྱོལ་ པར་ ཐེད་ བ་ ལ།
 ལྷ་ བས་ གཟུགས་ ལ་ སྤྱིལ་ཐེད་ན།
 དེ་ ལ་ ལྷ་ བའི་ གོ་ སྤྱལ་ མེད ༥
- 141 མྱེས་ དན་ འད་ ལ་ མི་ ཡན་ཡང་ །
 གཞན་ ལ་ གནོད་ པ་ ཐེད་ པ་ ཡོད།
 ལྷ་ གཟུན་ རས་ལྷ་ སྤྲོད་ར་ཡང་ །
 ཡ་འོ་ མཐོང་ ན་ མི་ གསོད་ དམ ༥
- 142 འདོད་ པ་ བདེ་ བ་ ལྷམ་ སེམས་ ཐུང་ །
 དེ་འི་ མྱོད་པ་ ལྷ་ བཟུལ་ རྩ།
 ཆད་ འཐུང་ བདེ་ འོ་ ལྷམ་ པ་ དེ།
 མྱོན་ པ་ བདེ་བར་ སྤོམ་ པ་ ཡིན ༥
- 143 མི་ ནམས་ ཚེ་ འིང་ བ་ མོན།
 ནས་ པར་ ཐུང་ན་ འཛིགས་པར་ ལྷ་
 ནས་ པས་ འཛིགས་ ཤིང་ ཚེ་ འིང་ ལ།
 འདོད་ པ་ ལྷ་ པའི་ འོས་ ལྷ་ ཡིན ༥

people, than from their own enemy. By what other animals is the corpse of a lion devoured, except by worms in his own body?

140. When a Master (Ruler) does evil to himself, who can defend him against it? When an object is offuscated by the light itself, there is no means of seeing it.

141. Some malicious men, though they derive no benefit thereof, like to do evil to others. Though a venomous serpent feeds on air, yet, when he sees others would he not kill them?

142. Though our lust fancies to be happiness, yet practice of it is the cause of sorrow. He that places happiness in wine-drinking, imagines that it is a mad man only that is happy.

143. Men wish to live long, and, when grown old, they are afraid of old age. To be afraid of old age, and to wish to live long, is the wrong principle (theory) of a foolish man.

- 144 གང་ ཞིག་ མཁས་པ་ ཡོད་ བཞིན་ཏེ།
 དེ་ ལས་ ཡོན་ ཉན་ མི་ སྟོབ་ ཀ །
 མི་ དེ་ གདོན་ གྱིས་ བདུབ་པ་ལམ།
 ཡང་ ཀ་ ལས་ གྱིས་ མནར་ བ་ ཡིན། ॥
- 145 གང་ ལ་ རོངས་ སྟོད་ ཡོད་ བཞིན་ཏེ།
 སྟོད་ རམ་ སྟོན་པར་ མི་ གདོད་ ཀ
 མི་ དེ་ ཀང་ གྱིས་ བདུབ་ པ་ ལམ།
 ཡང་ ཀ་ ཡི་ དྲགས་ མདོན་ ལམ་ ཡིན། ॥
- 146 ཚོས་ ལྷགས་ ཤེས་ གང་ མི་ སྟོབ་ ཀ །
 དེ་ ཡི་ ཚོས་ གྱིས་ ཅི་ ཞིག་ ར།
 ལོ་ ཉག་ ལྷན་ལམ་ ཚོགས་ ཀ་ ཡང་ །
 གཙན་ གཙན་ རགའ་ བ་ ག་ ལ་ སྟེ། ॥
- 147 ལས་ གྱིས་ མནར་ བའི་ སེམས་ ཙན་ ལ།
 རོངས་ སྟོད་ ཡོད་ གང་ སྟོད་ མ་ རུས།
 ཐ་ ིག་ སྟོགས་ གང་ རྟེན་ མེད་ གིང་ །
 ལྷགས་ བར་ ར་ བ་ ག་ ལ་ རུས། ॥

144. When there is a wise instructor, and one will not learn from him, to improve in good qualities, such man is either occupied by the devil, or suffers the ill consequences of his former works (actions).

145. He that is possessed of wealth, and does not enjoy it himself, neither bestows it charitably on others, either has fever, or is an accomplished miser.

146. Who knows what virtue is and does not practice it, to what use is his religion? Though there be a fine crop, the wild beasts, do they rejoice in it?

147. He that is afflicted with the ill consequences of his moral actions, though he has riches, cannot enjoy them. Though the crow be hungry, yet, since there is a snare laid, how can he fully be satisfied?

- 148 མུང་དམ་ཕྱིན་པར་མི་རྩལ་པའི་།
 ཉེར་དེ་ཕུང་པོར་བསྐྱེམ་ན་ནི།
 རི་བོ་གསེར་ཏུ་བསྐྱེམ་པ་ཡི།
 ཕུང་པོ་བསྐྱེམ་པ་ཤིན་ཏུ་མ། ॥
- 149 ཚོས་ཤེས་ཚོས་མིན་སྐྱབ་ལ།
 མཆས་པ་ཤིན་ཏུ་མང་ན་ཡང་།
 དེ་ལྟར་ཤེས་ནས་ཉམས་ལེན་པ།
 རྒྱུ་ལྡི་རྟེན་འདི་ན་ཤིན་ཏུ་དཔོན་མ། ॥
- 150 རིགས་གསུགས་ལང་རྩ་ལྷན་ན་ཡང་།
 ཡོན་ཏན་མེད་ན་མཆོས་པ་མནི།
 མ་ཐུ་སྐྱུ་སྐྱུ་ཡིད་འུང་ཡང་།
 ཆེན་པོའི་ཐུན་ཏུ་འོས་སམ་ནི། ॥
- 151 མི་དཀ་འབད་པས་བསྟེན་པས་ཁྱད་།
 རང་གིས་མི་ཆུ་འབྲོ་བ་མེད།
 རྩ་རི་ཁྱི་ལྟར་བསྟོན་ལྟར་ཁྱད་།
 མེ་ཆུ་འབར་བ་མི་མྱིད་དོ། ॥

148. If you think a man to be rich that neither can enjoy, nor bestow charitably his substance on others, it is very easy for you to make a rich man, by fancying that a whole mountain consists of pure gold.

149. Though there be many learned men, who know and tell what not a virtuous action is; there are very few in this world who would practise it, after having it thus understood.

150. Though a man has his birth, form, juvenile age, yet, without good qualities, he is not handsome; though peacock's feathers be beautiful, yet will they be convenient for the ornament of a great man?

151. By no endeavour can it be done that a naturally bad man be turned into an honest man. How long soever you boil water, it is impossible to make it burn like fire.

- 152 རྒྱ་མཚན་བདེགས་ནས་ཐོ་བ་ནི།
 རྒྱ་ཐད་རིགས་ཤིང་སེལ་བའང་ཤེས།
 རྒྱ་མེད་པ་ནི་གང་ཐོས་པ་
 དེ་ཡི་བསལ་ཤམས་ལྟ་ཡིས་ཤེས།
- 153 བསོད་ནམས་ཐད་ཁྲ་དན་སེམས་སྦྱེ།
 རིགས་ཆད་པ་ན་ལྷ་དན་སྦྱེ།
 རོར་ཐད་པ་ན་མམ་ཆགས་སྦྱེ།
 རོར་ཐད་པ་ན་འཚི་ལྷས་འབྱུང་།
- 154 འད་གིས་དན་ཕྱོད་མ་ལས་ན།
 བརྒྱ་ཕྱི་ཁྱིས་ཁྲ་མེད་མི་རྩས།
 རྒྱ་མིག་འད་ཀྱིད་མ་བསྐྱམས་ན།
 ས་ཡི་མནན་པས་ག་ལ་ལྷལ།
- 155 ལེགས་ཀྱི་འལས་ཀྱིས་ཐོད་པ་ན།
 སྒོ་ཆེན་ལོག་པའི་ལམ་ལ་འཕྱོ།
 རྒྱ་ལྷགས་ཕེད་པའི་སྒོན་པའི་མཚོན།
 དབང་ལྷག་སྒོན་པའི་རྒྱལ་ལྷགས་འཛིན།

152. If there is reason for it, it is somewhat proper to be angry, and there is also a cure for it; but who knows the mode of appeasing one when grown angry without a cause?

153. When one's virtues fail, then arises ill-will; when the right family descent is extinct, then will be born a bastard (then comes a base-born): when wealth has been expended there exist desires; when life is spent the symptoms of death appear.

154. If one has not committed any wicked action, Indra himself also cannot lay on him any blame. How can a water-spring be depressed, by laying (or heaping) earth on it, as long as it does not become dry by itself?

155. If conducted in a handsome manner, great minds follow a wrong way. The mad principal of the Tirthikas adopts the practices of Ishoora, the teacher.

- 156 ཅ་ ཅང་ ལོངས་ སྤོད་ བསམས་ གཤམ་ན།
 ཉེར་ ཉི་ འང་ གི་ གཤེད་ མ་ ཡིན།
 སྤང་ སྤལ་ སྤལ་ ཆེར་ སྤྱལ་ པོ་ ལ།
 འབྱུང་ གིས་ སྤང་ པོ་ བདེ་ བར་ རྒྱ།
- 157 ཅ་ ཅང་ མཐུ་ སྤལ་ ཆེ་ གཤམ་ ན།
 སྤེབ་ པའི་ རྩ་ གོན་ ཐེད་པ་ཡིན།
 གཤམ་ ཅ་ བསད་པ་ཡལ་པ་ ཆེ།
 མཐུ་ སྤལ་ ཅན་ ལ་ འབྱུང་བ་ མང་ ॥
- 158 འབྱུང་ དང་ ཤེས་ འབ་ སྤོབས་ ལ་སོགས།
 བསོད་ ཅམས་ རྩན་ ཅ་ གོགས་ལྟ་ འབྱུང་།
 བསོད་ ཅམས་ མེད་ ཅ་ དེ་ དག་ ལྟ།
 བདག་ ཉིད་ བསྐྱལ་ པའི་ རྒྱ་ཅ་ འབྱུང་ ॥
- 159 མཁས་པས་ ཐུ་བ་ཅི་ཐེད་ཐུང་།
 འང་ གི་ བསོད་ ཅམས་ བདེགས་དེ་ཐ།
 སྤོད་ རྩས་ བསོད་ ཅམས་ སྤྱན་རྒྱལ་པ།
 སྤེ་ བོ་ བརྒྱ་ཡི་ ཅང་ན་ དཔོན་ ॥

156. When a man becomes too famous for his riches, he is destroyed by his wealth. It is commonly rich men that are assaulted, beggars pass through without any molestation.

157. It is but to propose his own destruction, when a man becomes too renowned for his strength and skill. In battle mostly are slain such as have been strong and skilful.

158. Wealth, wit, strength, and the like, all will associate with you, if you have moral merits (if you are virtuous) but, if you have none, they become the cause of your ruin.

159. A wise man, whatever he does, must act with due consideration of his moral merits. At the time of contest, among a hundred persons, it is rare to find one of accomplished moral merits.

- 160 རྩིང་ངན་ ལྷ་ ཡིས་ ཁེངས་པ་ན།
 རྩོགས་ གཅིག་ ཅི་ནས་ འཛིག་པ་ ལྟུང་།
 གང་ ལ་ རྩོན་ ངང་ ལྷན་ ལྟུང་ པ།
 དེ་ ལ་ རིགས་ བརྩུང་ ཤིན་ཏུ་ དགོན་ ॥
- 161 སྤང་ངང་ ལྷན་ ར་ རྩོང་ ཅན་ དགོན།
 དེ་ ངང་ ལྷན་ ར་ དག་ བོས་ འཛོམས་ ོ།
 གམས་ ཅད་ སྤན་ ལྷན་ རྩོགས་ ལྟུང་ན།
 མི་ དེ་ ལྟུང་ཏུ་ འཛི་ བ་ མང་ ॥
- 162 དེས་ རས་ མཁས་ པས་ བསྟེན་ རམས་ བསམ།
 བསྟེན་ རམས་ ཁོ་ ར་ སྤན་རྩོགས་ ལྟུ་
 ལུ་ ཞིག་ གང་ ར་ སྤན་ རྩོགས་ པོ།
 དེ་ རི་ བསྟེན་ རམས་ བསམས་པའི་ རིགས་ ॥
- 163 ལྷན་ ལྱིས་ པ་ རྩོག་ བསྐྱུ་འོ་ ཞེས།
 ལྷན་ ར་ རང་ རིད་ བསྐྱུས་ པ་ ཡིན།
 ལན་ ཅིག་ ལྷན་ཏུ་ ལྷས་ པ་ དེ།
 བདེན་པ་ ལྷས་ཀྱང་ དོགས་ པ་ ལྟུ་ ॥

160. When a bad tank is full of water, certainly it will break out on any side. They that grow rich, seldom leave a posterity.

161. Seldom is found a rich man, that has children also ; but if he has both, he is often destroyed by an enemy. When one is happy in every respect, it happens frequently that such a man is carried off by an early death.

162. Therefore a wise man must acquire moral merits ; it is only virtue that is the cause of every happiness (or prosperity), when a man is prosperous in every respect, it is the sign of his having acquired moral merits.

163. He that thinks thus : I will deceive him, he deceives himself. If one has told one falsehood, afterwards, though he speak the truth, he will be doubted.

- 164 ལོགས་ རེས་ རྣམ་པར་མི་དཔྱད་པ།
 ཁྱིམ་ ཤིང་ ས་འོག་ གནོད་ འབེབས་པ།
 རྒྱུ་ མ་ བསད་ པའི་ ཇི་བ་ ལྟར།
 གོགས་ དང་ བུ་བའི་ རྩ་དཀ་ འོབ ༥
- 165 མོ་ལ་བ་ རྟོར་ རྣམ་ འཕྲུག་པ་ལ།
 འདི་ མི་ གཞིས་ ཀ་ འབྲུག་མི་ འཕྱུར།
 འབད་ པ་ མེད་ ཀ་ ཞིང་ བཟང་ ཡང་ ༥
 ལོ་ རྟོག་ འོབ་ པར་ མི་ འཕྱུར་ རྟོ ॥
 མི་ རིགས་ པའི་ རྒྱལ་ བཟང་པའཕྱེ།
- 166 སྒོ་ལྷན་ ཐུ་ བ་ རྒྱུ་ བཟང་ ཐུང་ ༥
 རྒྱུ་ ར་ བེས་ རྒྱུ་ བསྐྱུ་པར་ ཐུ།
 རྒྱུ་ པར་ རྒྱུར་ ཀ་ ལྟ་ རི་མོས།
 མ་ རྒྱུ་ ཀ་ ཡང་ མཛེས་ པའི་ རྒྱ ॥
- 167 རེམས་ རན་ མོས་ པ་ ལྷ་ རྩོགས་པ།
 རམས་ རད་ མཐུ་ བ་ རྒྱས་ཐུང་དགའ།
 རང་ རིང་ ཡོན་ རན་ ལྷན་ ཐུས་ ཀ།
 རམས་ རད་ མཐུ་ བ་ རེ་ ལ་ རེ ॥

164. He that does not examine what good and evil is, and, in his angry fit, injures his neighbour, he shall grieve, like the swallow bird, for his being deprived of his associate.

165. Both here and in the next world, if you are deficient in earnest application, you cannot be prosperous. Though the land be good, you cannot have a (plenteous) crop, without cultivating it diligently.

VIII.—THE ACTIONS (OR DOINGS) OF MEN (ཐུ་བ་).

166. An intelligent (pundit) man must always do a small thing also with due consideration, should he succeed (in his offices) what is there more desirable: but should he fail, it is yet handsome to have acted prudently.

167. The minds (sentiments) of men are very different—who-

- 172 སློ་གྲོ་མ་པོ་ལ་ལེགས་སྒྲུབ་ན།
 སློ་གྲོ་མ་པོ་ལ་ལེགས་སྒྲུབ་ན། འཕྲུལ།
 སློ་གྲོ་མ་པོ་ལ་ལེགས་སྒྲུབ་ན། འཕྲུལ།
 སློ་གྲོ་མ་པོ་ལ་ལེགས་སྒྲུབ་ན། འཕྲུལ། ॥
- 173 གམས་ལྷན་སྒྲུབ་སྒྲུབ་པའི་སྒྲུབ་པ་ལ།
 གམས་ལྷན་སྒྲུབ་སྒྲུབ་པའི་སྒྲུབ་པ་ལ།
 གམས་ལྷན་སྒྲུབ་སྒྲུབ་པའི་སྒྲུབ་པ་ལ།
 གམས་ལྷན་སྒྲུབ་སྒྲུབ་པའི་སྒྲུབ་པ་ལ། ॥
- 174 རྒྱ་ལྷན་སྒྲུབ་སྒྲུབ་པའི་སྒྲུབ་པ་ལ།
 རྒྱ་ལྷན་སྒྲུབ་སྒྲུབ་པའི་སྒྲུབ་པ་ལ།
 རྒྱ་ལྷན་སྒྲུབ་སྒྲུབ་པའི་སྒྲུབ་པ་ལ།
 རྒྱ་ལྷན་སྒྲུབ་སྒྲུབ་པའི་སྒྲུབ་པ་ལ། ॥
- 175 གམས་ལྷན་སྒྲུབ་སྒྲུབ་པའི་སྒྲུབ་པ་ལ།
 གམས་ལྷན་སྒྲུབ་སྒྲུབ་པའི་སྒྲུབ་པ་ལ།
 གམས་ལྷན་སྒྲུབ་སྒྲུབ་པའི་སྒྲུབ་པ་ལ།
 གམས་ལྷན་སྒྲུབ་སྒྲུབ་པའི་སྒྲུབ་པ་ལ། ॥

172. With a firm resolution for perfection, a low man also may yet become a principal, if a parrot is well instructed by those who understand teaching, he will know one's worth.

173. Men of little abilities also, if they depend on the great, may succeed (or prosper). A drop of water, is a small thing, but, when united with a lake when will it dry away?

174. Though a man is not intelligent by himself, yet he consults prudently another wise man. The hand does not kill an enemy, but if it takes a weapon, may it not do so?

175. Of a dangerous enemy also, if you know the means, you may make a confederate. Large quantity of poison hurts the body, but if you know how to make the mixture, it turns into medicine.

- 176 འིག་ པས་ བརྟེན་ པའི་ རས་ནི་ སྒང་ ।
 མ་ གེས་ གཞན་ ལ་ རྒྱུ་ སེམས་ སྒྲང་ ।
 མང་ གེས་ སྒྲིང་ རྩེ་ལས་ སྒྲང་ གས་ ।
 དེ་ ལས་ གལ་ ཅ་ རྒྱུང་ བར་ འབྱུང་ ॥
- 177 རི་མེད་ རང་ རྩེ་ལས་ མ་ རྒྱུ་ པ་ ।
 དེ་ལྟ་ བར་ ར་ རྩེ་ ཅམས་ བསྒྲུང་ ।
 རྩེ་ པ་ རྒྱུ་ ཅམས་ གང་ འིགས་ བ་ ।
 ར་ རྩེ་ བརྩེ་ བརྩེ་ གཞན་དག་ རྩེ་ ॥
- 178 མཆོད་ རྩེ་ལ་དང་ རྩེ་ ཅམས་ རྒྲང་ ।
 ཅམས་ རྩེ་ལས་ བརྩེ་ བར་ ར་ ।
 མཆོད་ གང་ ལ་ནི་ རྩེ་ ཅམས་ རང་ ।
 ལྟ་ རྩེ་ བར་ ར་ མཆོད་ བར་ གསྒྲུང་ ॥
- 179 རི་ལས་ རྩེ་ལས་ ལ་ མི་ གཞན་པར་ ।
 འིགས་ པའི་ རྩེ་ རྩེ་ རྩེ་ རྩེ་ལས་ བརྩེ་ ।
 རྩེ་ལས་ རྩེ་ ལ་ རྩེ་ལྟ་ བརྩེ་ ।
 གཞན་ པ་ མང་ན་ རྩེ་ལས་ རྩེ་ ॥

176. / Aught of the food and money which is offered to you for your learning; listen to others and leave off pride. You may take the fruit from the top of a tree, but, if you reach further, you fall down.

177. As long as you have not sufficient strength, bear (have patience with) your enemy; when you are strong enough, do as it seems best to you. Thus it is said in other shastras.

178. Treat with due respect, and reward always liberally those round about you. It is said, that with sacrifices and offerings we will have all from the gods down to the spirits (or ghosts).

179. In a becoming manner a prince may tax his subjects without oppressing them. A Sābtru becomes dry, if too much fragrant juice issues from it.

- 180 འད་སྦྱོང་ འབད་པར་ ཐ་བར་ཅུ །
 ཡུལ་ ཆེར་ གསལ་བར་ བཟུན་པས་ ཉམས །
 ཐྱེད་ རྩོལ་ གར་ མི་ ཕེད་ ཅ །
 མཐུལ་དུ་ གན་ པ་ ཅ་ཕྱེ་ འདྲེགས །
- 181 གཞན་ གིས་ བཟུང་ པར་ ཐུང་པ་ཡི །
 རས་ ངང་ རྟེན་ ཐུས་ ཅ་ ཞིག་ ཅུ །
 ཁྱི་ ཡག་ མི་ གཅོང་ ར་པ་ལ །
 མཁས་ པ་ ལ་ ཞིག་ ཡིང་ མྱོན་ཅུང །
- 182 ཡ་འལ་ འཛིང་ ལ་ འཕྲོ་བལ་ རྩིག །
 ངག་ བོ་ ལ་ ཡང་ ཐ་ མི་ཅུ །
 བས་ ཅ་ བཞིན་ཅུ་ འད་ རིང་ལ །
 དེ་མ་ གན་དུ་ ལེ་ ལན་ འཕྱུང་ །
- 183 གལ་ ཏེ་ ངག་ ལ་ གནང་ འདྲོང་ན །
 འད་ རིད་ ཡན་ ཏན་ རྩན་པར་ ཅུ །
 དེ་ཡིས་ ངག་ཡང་ རྩམས་ ཐེག་ཅང་ །
 འད་ཡང་ བསེད་ ཉམས་ འཕྲེལ་བར་ འཕྱུང་ །

180. Be studious to conceal the manner of your actions. Commonly, it is weakness to show it plainly. Had the eye not been found devising they would not have tied a rope on his neck.

181. To what use are such food and goods as are contemned by others? What wise man would have such dirty things as are eaten by dogs and swine?

182. We should never use such expressions as might hurt one, not even against an enemy; they immediately will return on us, like an echo from a rock.

183. If you wish to injure an enemy, make yourself perfect in all good qualities. By doing so, the enemy himself will be mortified, and you yourself also shall improve in virtue.

- 184 མི་ ཟུག་ དག་ ལ་ ཐམས་ ལམས་ ཟུང་ །
 རྩོད་ ཆོས་ ཁྱི་ ཉན་ གཅུ་ལ་ཡང་ ཐུ།
 རང་ གི་ ལུས་ ལ་ ཡན་ འདྲོང་ རྩམས་ །
 གཏུ་ བསྟུག་ ཟུང་ གྱིས་ ཉན་ རྩམས་ འདྲོན་ ॥
- 185 རང་ རྩམས་ ཟུང་ ཡང་ ཟུང་ མི་ ཐུ།
 དག་ རྩམས་ ཐམས་ ཐུང་ འཇུ་ མི་ ཐུ།
 ཐུ་ རྩམ་ ཐུ་ རྩམ་ གྱིས་ འཇུ་ ཡང་ །
 རྩམ་ པ་ རྩམས་ དང་ མཐུན་པ་ མན་ ॥
- 186 ཐུ་ བ་ ཆེ་ རྩང་ གང་ ཐུང་ ཐུང་ །
 མཆས་ པས་ རྩམ་ ཐུ་ བསྟུག་ རྩམ་ ཐུ།
 ལུང་ གས་ རྩམ་ རྩང་ རྩང་ ཆེན་ གཉིས་ །
 གསོད་ པའི་ ཆེ་ ཉན་ རྩམས་ རྩང་ མེད་ ॥
- 187 བངས་ པས་ མཐེ་ བའ་ དམ་ པ་ ལ།
 བའིན་ པས་ བངས་ ལ་ ཡན་ པ་ འཇུལ་ །
 ཟུག་ པའི་ དེས་ ལ་ གནས་ པ་ ཡི།
 ཐུ་ རྩམས་ གསེར་ རྩམ་ བའ་ འཇུར་ ॥

184. The foolish man is tender-hearted to an enemy: this must be subdued in a rough manner. They that wish well to their own body, take out the disease of it, by bleeding and caustic operations.

185. Though our own party is angry with us, we should not desert it. Though an enemy treats us with kindness, we should not embrace his cause. Though a crow hurts another crow, yet they do not agree with the owl.

186. A wise man, whatever he does, whether great and small things, must do them with due consideration. When the lion kills both the hare and the elephant, he has no time for consideration.

187. If we keep to such as are more excellent than we, we profit thereby. Those birds that abide on the side of Sumeru (Kirab) seem to shine like gold.

- 188 ཆེན་ པོ་ ལྷན་ ཉེན་ ལྷན་ པ་ ལ།
 .བདེན་ ན་ ཆེན་ པོ་ གྲོ་ མི་ འབྱུང་།
 གི་ མའ་ འད་ ལ་ ཉེ་ པ་ ཡིས།
 ཤྱ་ བ་ མའ་ ངའ་ ལྷུང་ ལ་ ཉེས། ॥
- 189 མི་ གང་ མཛུ་ བ་ མི་ བརྟེན་ པ།
 དེ་ དང་ འབྲེགས་ པ་ ལྷ་ འིག་ རྩས།
 ནམ་ མཁའི་ འཇུ་ ཚིན་ མདུག་ མཛེས་ རྒྱང་།
 ལྷན་ ར་ འ་ ན་ ལྷན་ པོ་ འབྱུང་། ॥
- 190 བདག་ ཉིད་ གང་ ལ་ མི་ དགུ་ བ།
 གཞན་ ལ་ ལྷན་ ར་ དེ་ མི་ ར།
 གཞན་ ལྷས་ རྒྱང་ རྒྱ་ གཞིས་ པའི་ ཚི།
 བདག་ ལ་ བསམ་པ་ ཅི་ ཡོད་ བསམ། ॥
- 191 བདག་ ཉིད་ གང་ ཞག་ གང་ དགུ་ བ།
 དེ་ ཉིད་ གཞན་ ལ་ ལྷུང་ རྩས་ ན།
 གཞན་ ལྷས་ བདག་ ལ་ གང་ དགུ་ བ།
 དེ་ ཡི་ རྩལ་ ལྷས་ མཛེད་ པའ་ འབྱུང་། ॥

188. If you depend on an envious great man, you never shall obtain renown. See how the moon does decline after having approached to the sun.

189. Who can associate with such a man, as keeps no friendship? Though a rainbow is beautiful, it is a foolish man's error if he takes it for a real ornament.

190. What we like not for ourselves, we never should do to others. When we are injured by others, we should reflect on, what think we then in ourselves?

191. If we do to others what is agreeable to us, others also, in the same manner, will honour us with a pleasing return.

- 192 དམ་ པ་ དག་ ལ་ བདེན་ པ་ དང་ །
 མཁས་ པ་ དག་ ལ་ འདི་ བ་ དང་ །
 གཞུང་ བཟང་ པ་ དང་ འཕྲིན་ པ་ ཅེ་ །
 ལྷ་ ལ་ ཡོད་ པ་ རྒྱན་ ཅ་ བདེ་ །
- 193 གམས་ རྒྱང་ ཅམས་ གྲིས་ འང་ ཉིད་ གྲི་ །
 སྤ་ བ་ གམས་ ཅད་ འབྲུག་ པར་ བསམ་ །
 དེ་ ལྟར་ གེ་ ཅ་ མེ་ སྤ་ བའི་ །
 མི་ ལ་ གཞན་ གྲིས་ བཟུང་ བ་ ཉེ་ །
- 194 ལྷ་ ལ་ དང་ ཅས་ ལ་ བཟ་ པའི་ རྒྱེ་ །
 འབ་ ཅ་ བསྐྱམས་ ཉེ་ ལན་ འགའ་ སྤ་ །
 འཕྲིན་ བཟད་ ཡིན་ གུང་ མང་ ལྟར་ ཅེ་ །
 རྒྱུང་ རྒྱང་ ལྷ་ བཞིན་ རིན་ མི་ འབྲུང་ །
- 195 འང་ རྒྱན་ མཁས་ པ་ ཅམས་ གྲིས་ གུང་ །
 རྒྱན་ ཅ་ ག་ བ་ ཞིན་ ཅ་ དཀའ་ །
 མང་ པོས་ བདག་ ལ་ དེ་ སྤྲུག་ ཅེ་ །
 རྒྱན་ ཅན་ ཡིན་ པར་ ཞིན་ ཅ་ དཔག་ །

192. He is always happy, who has the opportunity of depending on the excellent, of asking (consulting) the learned, and of conversing with good-natured men.

193. Weak-minded men fancy (think) that every thing that they speak, is erroneous. The man who thinks thus, if he do not speak, is very much to be suspected by others.

194. At its proper place and time, after having well considered, speak some time. Though you utter only (or all) elegant sayings, yet if too much, like overplus merchandises, they have no price.

195. It is very difficult (or seldom) in learned men also, to take for a defect the imperfection, that they have. Take care, whoever (studiously) confesses of himself to have such defects, he is a faulty man.

- 196 ཉེ་པ་ དང་ གཤམ་ འཁོར་ མེད་ ན་ ཡང་ །
 མཛེལ་ བོ་ གློ་ ལྷན་ འགྲོགས་ ཡོད་ ན་ །
 རྩད་ འགྲོས་ གྲང་ ནི་ དེ་ན་ ལྷུ་ ན་ །
 མི་ ཡི་ འགྲོ་ བ་ ལྷོས་ ཅི་ དགོས་ ॥
- 197 ཡུན་ རིངས་ འཁོར་ པའི་ དག་ བ་ དང་ །
 མཛེལ་ བ་ བྱེད་ གྲང་ བཤེ་ མི་ བྱ་ །
 ཤིན་ ཅ་ ཚེ་ བའི་ རྩ་ ཉིད་ གྲང་ །
 མ་ དང་ སྤྱད་ ན་ མ་ གསེད་ དམ་ ॥
- 198 གཞུང་ བརྒྱད་ ངོ་ ཚེ་ འཁྱེ་ ཡོད་ ན་ །
 དག་ བོ་ ལ་ ཡང་ ཡོད་ བདེན་ རྩད་ །
 གཞུང་ བརྒྱད་ དག་ ལ་ ལྷུ་ སོ་ བས་ །
 སྤྱེ་ གི་ བར་ རྩ་ ལྷུ་ བས་ པ་ ཐོས་ ॥
- 199 རྩ་ གས་ ལོགས་ པར་ ཤེས་ ན་ ཡང་ །
 བྱ་ བ་ ཤམས་ ཅད་ བོས་ གྱིས་ བྱ་ །
 མ་ གང་ བོས་ ལ་ མི་ དཀའ་ བ་ །
 འགྲོད་ པ་ རིན་ ཆན་ ཉོ་ བ་ ཡིན་ ॥

196. Without wealth, and without a train of servants, if there is for companion an intelligent friend, a beast also may find his concern, how much more a man?

197. With an enemy, who is from long time voracious against us, we should not coalesce, though he be desirous of our friendship. If fire meets (or comes in collision) with hot water will it not be extinguished by this?

198. We may rely upon an enemy too, when he is a good-natured, righteous and honest man. I have heard, that one, by resorting for protection to a good-tempered enemy, has been defended by him until his life's end.

199. Though you be well acquainted with the subject (or matter) do every thing with due consideration, he, that neglects it, shall dearly pay for his indiscretion.

- 200 གལ་ ཏེ་ དག་ རྩལ་ འདས་ ན །
 དེ་ ལ་ མཆོད་ གནས་ ལྷན་ པན་ བཅོད་ །
 ལྷ་ ཏ་ ཁྱི་ པ་ ལ་ བརྟན་ པས་ །
 བདེ་ བ་ ཐོབ་ ཅེས་ ལྷན་ རལས་ ལྷ །
- 201 འཇགས་ པར་ བདེགས་ ནས་ ཐུད་ པ་ ལ །
 ཐུ་ བ་ ཉམས་ པ་ ལ་ ལ་ ལ་ ལྷོད་ །
 མ་ ལ་ ལྷན་ བདེགས་ ནས་ འགྲེ་ བ་ ལ །
 གཡང་ ས་ གམས་ པ་ འདྲེ་ ར་ རམ་ ཅི །
- 202 རང་ ཉིད་ ཅིས་ རྩང་ མཐུ་ འདྲེ་ ན །
 གཞན་ ལ་ སན་ པ་ འཕུ་ ཞིག་ ཐིས་ །
 ཐུད་ ལ་ ཁྱི་ དེ་ ར་ རྩད་ པ་ ནམས་ །
 ལྷན་ ལ་ མེ་ ལོད་ མི་ འཕྱུད་ དམ །
- 203 ས་ རྩལ་ ཅི་ ནས་ གཞོམ་ འདྲེ་ ན །
 རང་ གི་ ཡོན་ ཏན་ འཕུ་ པས་ བརྩལ་ །
 དག་ བོ་ གསོད་ པར་ འདྲེ་ པ་ ནམས་ །
 མཆོན་ ཆ་ འཕུ་ ན་ ལྷན་ ལ་ ལྷོད་ །

200. If you resort for protection to an enemy, show him every respect and reverence. The raven, by depending on the rat, was saved, according to the Purānas.

201. How is it possible that you should fail in your affairs, when you act with discretion? If a clear sighted man walks discreetly, will he not avoid the precipice?

202. The more you desire to be exalted, the more you endeavour to be useful to others. They that wish to decorate their face, would they not first make clean the looking-glass?

203. The more you endeavour to conquer an enemy, the more you exert all your good qualities. See how they are confounded (or afraid) when they see their enemy make ready his weapons.

- 204 རྒྱལ་ དན་ བཛོད་ པས་ འཇིག་ རྟན་ ན །
 འདོད་ པ་ རྒྱལ་ པ་ མི་ ལྷིད་ གྱིས་ །
 ཡདལོ་ རྩ་ འདོད་ རྒྱལ་ ན་ ཡང་ །
 དག་ གས་ ལྷན་ དང་ མཐུན་ པར་ གྱིས་ ॥
- 205 རྩ་ དང་ གཞན་ གྱི་ དེན་ རྒྱལ་ ན །
 འཇམ་ རྩོལ་ རི་ ལྷུ་ གུས་ གུང་ རྩང་ །
 གཡས་ ལ་ མཇམ་ པའི་ ལྷིད་ པ་ ལ །
 གཡོ་ ལྷུ་ གུས་ པས་ མ་ གཡུངས་ ལེ །
- 206 ལྷ་ པ་ ལྷ་ ལྷན་ མགོ་ ལྷང་ ན །
 ལྷིང་ གུང་ ལྷིད་ ལ་ ལྷས་ པ་ ཡག །
 མར་ མེ་ གུར་ རྩ་ ལ་ བལྷན་ ན །
 ལྷན་ པ་ པེ་ ཡི་ ལག་ པ་ བཤེག །
- 207 གང་ དང་ གང་ གི་ གནས་ ཡིན་ པ །
 དེ་ དང་ དེ་ ཡི་ གནས་ ལྷ་ བཞག །
 གཞིན་ གྱིན་ སང་ པར་ མི་ གདགས་ ཏེ །
 སང་ པའི་ སང་ གྱིན་ ལྷི་ གཞིན་ མན །

204. It is impossible in this world, that you should obtain your wish by **cursing** (or abusing). Though you be selfish in your mind, be affable to all, in speaking.

205. If we have our concern and that of others, it matters not, whether we have obtained it by soft or harsh means. The Muni has not declared it to be craftiness to employ wise means in our doings.

206. When a prudent man hangs down his head, the fault falls on him that abuses. When a light is kept downwards with its mouth, (or a lighted candle or torch) it burns the hand of the light-keeper.

207. Place every thing to its proper place. A head-ornament is not tied on the legs; bracelets (or rings) for the legs will not answer as a head-ornament.

- བཟོ་ཡི་རིག་ཅེད་ཐུངས་པ་ ལྟར།
 དམ་ཚེས་དགུ་བ་མེད་པར་ འབྱུང།
 212 གང་ཞིག་ཏུང་རྩས་ཚེས་ཤེས་པ།
 དེ་ཡི་ལོངས་ཕྱེད་རྩད་མི་ཤེས།
 ཚེས་ཤེས་མེད་པར་ཚེས་པ་ལ།
 རྩག་བལྟ་ཆར་བཞིན་ཐུང་ཅ་འབྱུང།
 213 གམ་དགས་ཚེ་ན་ལོན་པ་ཡི།
 གེར་ནི་ཐུན་པར་ལྷུ་པས་གཏུངས།
 བསགས་པའི་གེར་ནི་ཐུང་ཙ་ལྟར།
 གམ་ཞིག་གཞན་ཐུས་ཕྱེད་པར་འབྱུང།
 214 འཇིག་རྟེན་འདིར་ནི་ཐུན་བཏང་བས།
 དངོས་པོའང་ཐོབ་པའི་དེས་པ་མང།
 ཐོང་ལ་ཐུན་ལ་འབད་མེད་པར།
 ཐུང་ཡང་བཞི་བཞུར་ཐོབ་པར་འབྱུང།
 215 རིགས་པུན་ཏུང་ཐུས་དོན་པས་ན།
 ཐོ་ཐུང་ཐུང་རྩད་བཞེད་པ་སོག།

accustomed to. As we have learned the mechanical arts, we may exercise also virtue (true religion) without difficulty.

212. The wealth of a man, that is contented with little, is inexhaustible. He that seeks always for, and is never satisfied, will have a continual rain of sorrow.

213. Give of the goods that you have received from others, when they have need of them, as Thub-pa (Shākya) has commanded us to do. In the same manner as honey (of the bees), all hoarded treasure will once be enjoyed by others.

214. In this world, it is uncertain, if you lend money, whether you shall have the principal or not, but if you bestow it in alms, though it be small, it will increase hundred-fold.

215. From fearing that his family will be impoverished (thereby)

ਮਾਨਸਾ ਪਾ ਚਿੰਤਨਾ ਵਛੁੰਦਾ ਮਥੈ ਏਵਾ ਭੁੰਦਾ ।

ਭਾਗੁਭਾਗ ਵਛੁੰਦਾ ਭਾਗੁਭਾਗ ਭਾਗੁ ਭੁੰਦਾ ॥

- 216 ਫਿੰ ਭੁੰਦਾ ਪਾ ਮਾ ਸੁੰ ਭੁੰਦਾ ਪਾ ।
 ਦੇ ਭੁੰਦਾ ਸੁੰ ਭੁੰਦਾ ਪਾ ਮਾ ਭਿੰ ।
 ਪਾ ਮਾ ਸੁੰ ਭੁੰਦਾ ਵਛੁੰਦਾ ਵਛੁੰਦਾ ਭੁੰਦਾ ।
 ਪਾ ਮਾ ਭੁੰਦਾ ਭੁੰਦਾ ਸੁੰ ਭੁੰਦਾ ਵਛੁੰਦਾ ॥

- 217 ਬੇਦਾ ਚਰਿ ਭੁੰਦਾ ਪਾ ਭੁੰਦਾ ਪਾ ਭੁੰਦਾ ।
 ਬੇਦਾ ਚਰਿ ਭੁੰਦਾ ਭੁੰਦਾ ਭੁੰਦਾ ਭੁੰਦਾ ।
 ਭੁੰਦਾ ਭੁੰਦਾ ਭੁੰਦਾ ਭੁੰਦਾ ਭੁੰਦਾ ।
 ਭੁੰਦਾ ਪਾ ਵਛੁੰਦਾ ਭੁੰਦਾ ਭੁੰਦਾ ॥

- 218 ਭੁੰਦਾ ਪਾ ਭੁੰਦਾ ਭੁੰਦਾ ਭੁੰਦਾ ਭੁੰਦਾ ।
 ਭੁੰਦਾ ਭੁੰਦਾ ਭੁੰਦਾ ਭੁੰਦਾ ਭੁੰਦਾ ।
 ਭੁੰਦਾ ਭੁੰਦਾ ਭੁੰਦਾ ਭੁੰਦਾ ਭੁੰਦਾ ।
 ਭੁੰਦਾ ਭੁੰਦਾ ਪਾ ਭੁੰਦਾ ਭੁੰਦਾ ॥

a narrow-minded man keeps anxiously all the little that he gets. A wise man, to obtain a high rank, bestows his alms, as bribes, on others.

216. As children are loved by their parents, they are not respected in the same manner by their children. After the parents have long cherished their children, when they have grown old, they are despised by them.

217. They that have become the slaves of the world, run after riches, neglecting their own souls. Contented men, though they obtain wealth, give it, as an excellent man does to others.

218. If you fight an enemy, since he does harm to you, subdue your own passions, it is on account of your passions, that, from the beginning, you are wandering in the orb of transmigration; and then you shall be perfectly free from all harm.

- 219 གལ་ ཏེ་ དམ་ ལྷན་ བརྒྱལ་ འདྲོང་ ན །
 གསལ་ པ་ དེ་ ལྷན་ གལ་ འཛོང་ །
 རང་ གི་ ཁྱོ་ བ་ གཅིག་ བཅོམ་ པས །
 དམ་ ལྷན་ གཅིག་ རང་ བསལ་ པ་ ཡིན །
- 220 མཐུ་ ཆེན་ བརྩོ་ ལྷན་ ལྷོང་ པ་ ལ །
 ཁྱོས་ ན་ རང་ ལ་ ལྷན་ པར་ གནོད་ །
 དམ་ པ་ ཉེ་ བར་ ཞི་ བ་ ལ །
 ཁྱོ་ བར་ ལྷོ་ ལྷོ་ ག་ ལ་ ཡོད་ །
- 221 ལྷོང་ པེ་ གཅིག་ ལ་ ལྷོས་ པ་ ཡི །
 མ་ རྣམས་ ལྷོང་ གིས་ ལྷོས་ བརྒྱུ་ འཕྲོང་ །
 དེ་ བཞིན་ ལྷན་ ཅིག་ ལྷོས་ པ་ ཡི །
 ལྷོ་ བོ་ ལས་ ལྷོས་ སེ་ སྟེ་ འཕྲལ་ །
- 222 རང་ འདྲོང་ འཕལ་ པ་ས་ བརྒྱ བ་ འདྲོང་ ན །
 དེ་ ཡིས་ དང་ པར་ གཞན་ དེན་ བརྒྱལ་ །
 རང་ དེན་ འཕལ་ ཞིག་ གཅོམ་ ལྷོང་ པ །
 དེ་ ཡིས་ རང་ དེན་ འཕལ་ མི་ ལྷོང་ །

219. If you will destroy all your enemies, you never shall be at an end with killing them. But if you have subdued only your own passion, you have at once destroyed all your enemies.

220. If you are angry with a powerful mischievous man, you hurt the more your ownself. What reason have you to be angry with a virtuous and very sedate man?

221. Herbs, that grow on the same stubble, are dispersed by the wind into the ten corners (of the world) thus men, that are born together, are separated by the effects of their moral works.

222. If you will earnestly obtain your own concern, first seek that of others. He that seeks only his own concern principally, it is impossible, that he should succeed in obtaining his own purpose.

- 223 ལྷན་ པོ་ མི་ སྒྲོ་ ངོ་ མཚོར་ འཛིན།
 མཁས་ པ་ སྒྲོ་ པ་ ངོ་ མཚོར་ འཛིན།
 དེས་ ན་ མཁས་ པ་ ནས་ ཐུང་ བྱང་ །
 ཕྱི་ མའི་ དོན་ ཅུ་ རྒྱ་ པ་ སྒྲོ་ བྱང་ ॥
- 224 གས་ རྒྱ་ མེད་ པའི་ ཐུ་ མཚོན་ ཐུས།
 ལྷན་ པོ་ ཡོན་ ཏན་ མ་ སྒྲོ་ བྱང་ བོ།
 བརྟམས་ ན་ གས་ རྒྱ་ མེད་ བཞེར་ ཐུས།
 ལྷན་ པོ་ འཕད་ ནས་ སྒྲོ་ བྱང་ བཞེས་ བོ།
- 225 ཐུ་ བ་ ལ་ མ་ མ་ བསྐྱུལ་ པས།
 ཚེ་ འདིར་ ལྷན་ པོར་ མཐོང་ ནས་ ནི།
 ཐུ་ མ་ ལྷན་ པོར་ ཐུ་ དོན་ པ།
 ཚེ་ འདིར་ དཀའ་ ཡང་ འཕད་ པས་ བསྐྱུལ་ ॥
- 226 སྒྲོ་ ལ་ གས་ པ་ མི་ དཔོན་ ཞེས།
 ལྷན་ པོ་ སྒྲོ་ ཐུ་ ཅུང་ ཅ་ སྒྲ།
 གོས་ པ་ མེད་ པའི་ སྒྲོ་ ལ་ དེ།
 འཕད་ བྱང་ ཅུང་ འཕེལ་ ལྷན་ གས་ ཡིན་ ॥

223. A foolish man will not learn, and takes every thing for a miracle, a wise man after having studied, admires every thing. Therefore a wise man, though grown old, acquires knowledge for his future state.

224. The fool seeks not to acquire science, since he says, he has no mind of understanding; but if he would well consider, he should endeavour for this reason to learn to improve his understanding.

225. One that has not learned in his former birth, is ignorant in the present life. He that is afraid to be born again ignorant in the next world, though it be difficult, must study assiduously in this life.

226. Meditate, there is no need to learn by hearing, thus say the narrow-minded fool. Contemplation without previously hearing (experimental learning) though it be diligently pursued, is the way of preparation of a beast.

- 231 མྱོ་ལྷན་ ིང་ གིས་ ཤེས་ ཀ་ ཡང་ །
 མཁས་ པའ་ གཞུང་ ལྷན་ ལེན་ པར་ བཟུ་ །
 ིན་ རྟེན་ ཤིན་ ཅུ་ བཟང་ ཀ་ ཡང་ །
 མ་ བཟོས་ པར་ ཅུ་ ིན་ དང་ རྒྱང་ །
- 232 ཀནས་ རྟེན་ ཤིན་ ཅུ་ མང་ ཀ་ ཡང་ །
 རྟེན་ དན་ ས་ མཆོག་ རྩེ་ བ་ རྒྱང་ །
 དེ་ བཞིན་ མཁས་ པ་ མང་ ཀ་ ཡང་ །
 ལེན་ བཤད་ རྩུང་ བ་ ཤིན་ ཅུ་ དཀོན་ ॥
- 233 ཏ་ མཆོག་ རྩེ་ བའ་ རྟེན་ ཀ་ ཤེས་ །
 གསེར་ དཔྱུ་ བཞུ་ ཀས་ ཤེས་ པར་ རྩུང་ །
 རྒྱང་ རྟེན་ གཡུ་ དེར་ ཤེས་ རྩུང་ ཏེ་ །
 མཁས་ པ་ ལེན་ བཤད་ རྩེ་ ཀ་ ཤེས་ ॥
- 234 རྟེན་ རྟེན་ ཅུ་ བ་ ལེན་ ཤེས་ པ་ །
 དེ་ ཡིས་ དམ་ པའི་ རྟེན་ ལྷན་ རྩུབ་ །
 དེས་ ཀ་ རྟེན་ ལྷན་ རྩེ་ པ་ དེ་ །
 ཅུང་ རྩུབ་ ལེན་ དཔའི་ རྟེན་ ཏེར་ ཡིན་ ॥
 རྟེན་ བཏོག་ པ་ རྩེ་ །

231. Though an intelligent man knows by himself also, yet he peruses the text-book (composition) of a learned man. Though precious metal is very fine, yet it has less price, till it has not been wrought up.

232. Though there be many forests, yet very scarce is the spot, where the Sandal-tree grows. Thus also, though there be many learned men, yet elegant sayings seldom are to be found.

233. Gold and silver are known when they have been melted. An elephant's goodness will appear in the field of battle. A learned man may be judged by his composition of elegant sayings.

234. He that is acquainted with the manners of the world, will exercise true religion. Therefore he that practises good morals, is the living biography of a saint.

Note.—The numbers omitted in this last enumeration have not been translated now. The whole work consists of 454 *Ślokas*.



Notes on a forest race called Puttooas or Juanga, inhabiting certain of the Tributary Mehals of Cuttack.—By E. A. SAMUELLS, Esq. B. C. S. Superintendent of the Tributary Mehals.

In the 248th Number of the Journal, there appeared an interesting memorandum by Mr. Piddington on two individuals of an unknown forest race, supposed to inhabit the jungles south of Palamow. I think it not improbable that the persons who are there described may have belonged to the forest race, called Puttooas, which inhabits the jungles of the Tributary Mehals to the South of Singbhoom, and that the female had, from motives of convenience or from fear of pursuit, abandoned the peculiar dress, which ordinarily distinguishes the women of the tribe.

These Puttooas are very little known even to the inhabitants of Cuttack. Mr. Sterling does not notice them in his History of Orissa, and the only mention I have found of them in any publication is contained in a short paragraph of a Report by Mr. Mills on the Tributary Mehals of Cuttack, which was published in the 3rd Vol. of the "Selections" of the Bengal Government. Some account of this peculiar people will not therefore, I presume, be unacceptable to the members of the Society.

I first met with the Puttooas at the Killah of Dhekenal in 1854. I saw another large party of them in the Hindole Killah last year, and a few weeks ago I visited a Puttooas village near Bhapore, on the Ungool road, in company with my friend Major Strange of the trigonometrical Survey, to whose graphic pencil the Society is indebted for the spirited and life-like sketches which accompany these notes. My information regarding the habits and customs of the tribe is derived chiefly from the Puttooas themselves, but to some extent also from the Dhekenal Rájáh, to whom I sent a paper of queries last year on the subject.

The Puttooas are scattered over the Tributary Mehals (or Killahs, as they are frequently called) of Kconjur, Pal Leyra, Dhekenal and Hindole. In Dhekenal, they are said to number one thousand and five persons of all ages and sexes, inhabiting fifty-eight different localities. Their numbers in the other Mehals I have not been able

to ascertain with any certainty. It is commonly supposed, however, that they occupy about thirty villages in Keonjur, and six or seven in Pal Leyra and Hindole.

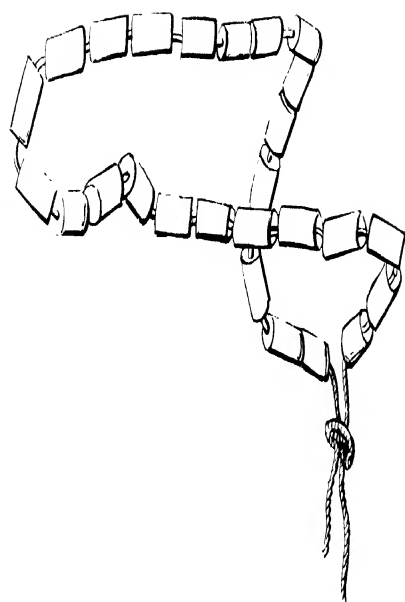
In appearance, the Puttoos differ materially from the Ooriahs, in whose neighbourhood they are found. Their stature is diminutive not exceeding apparently 5 ft. 2 in. the males, and 4 ft. 3 or 4 in. the females. Their forms are slight with very little muscular development and their physique seemingly weak. There is of course, a great variety of physiognomy apparent amongst them, but I remarked, as a general characteristic which rarely failed, that the face was broader and shorter than in the Ooriah, and that the nose was flat with wide nostrils. Their colour is not darker than that of the Ooriah peasant.

The men are far from being handsome, but the palm of ugliness must be awarded to the women. I must have seen altogether about forty or fifty of the Puttooa women, old and young, and I did not observe one who was not repulsively ugly. It was evident from what we saw in the village which Major Strange and I visited, that all the drudgery of the household devolved upon the women; and to this, and their constant exposure, may partly be attributed the coarseness of feature, which distinguishes them; they seemed to us, however, to be also insufficiently fed. Their persons were generally spare and emaciated, while the men, for the most part, appeared to be in good condition.

The dress of the men is the ordinary one of the native peasantry, but the women wear no clothes whatsoever. Their sole covering consists of two large bunches of leaves (or rather of twigs with the leaves attached) of which one is worn in front and the other behind. The twigs are sometimes fastened together by a strip of bark, but are more generally loose, and are kept in position by a string of glazed earthen-ware beads passed twenty or thirty times round the waist and over the stems of the twigs. It is from this original costume that the tribe have obtained from their neighbours the name of Puttooa—quasi *the people of the leaf*. They call themselves Juanga. The leaves which I observed in use were those of the sál, the jamoon, the koorye, and the chaldua, but I was told that the leaves of the bur, the peepul, the mhowa and the kendooa, in fact



EAR AND HAIR ORNAMENTS



SPECIMEN OF THE BEADS OF WHICH THE GIRDLE IS COMPOSED

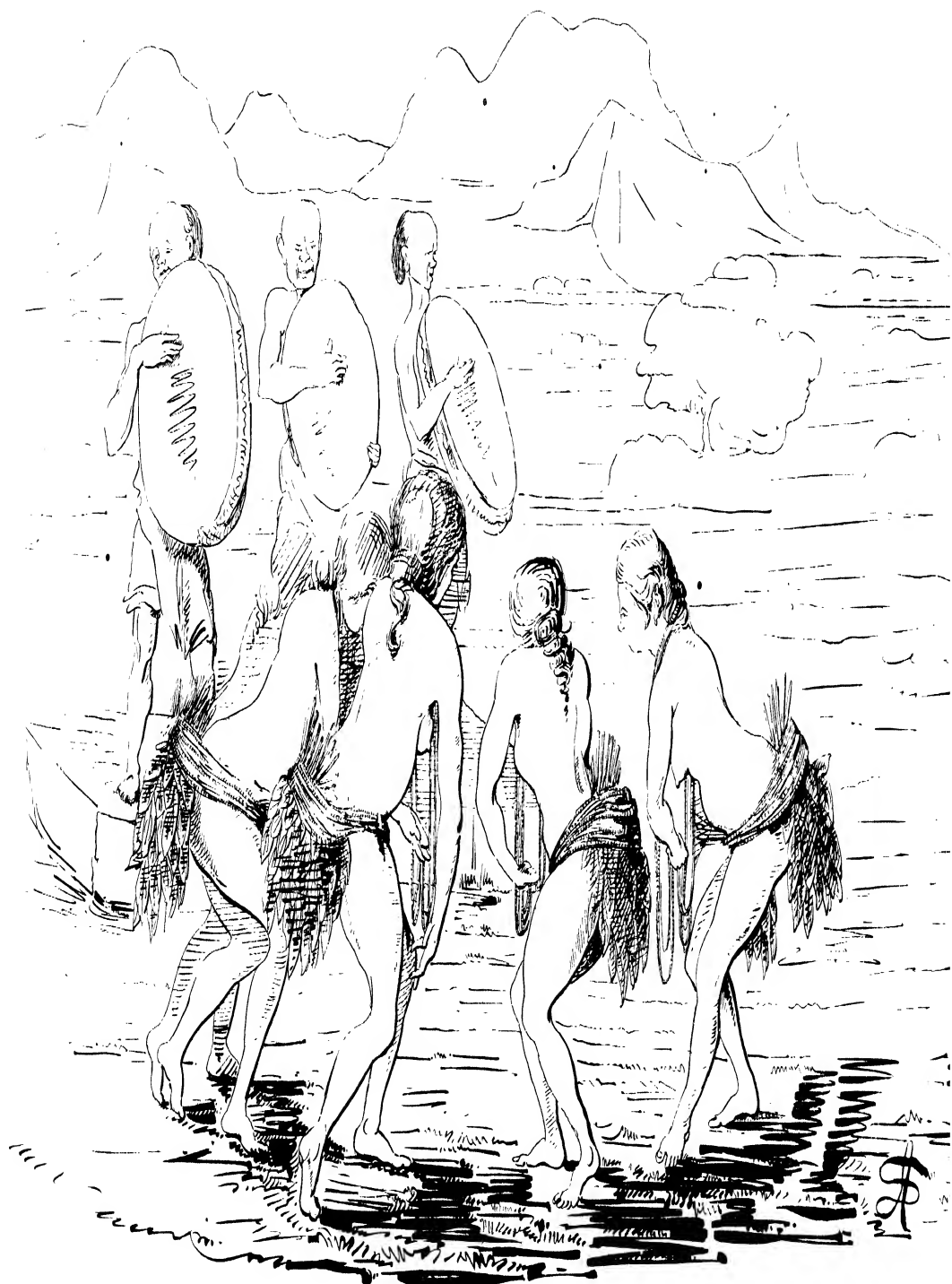
all large and smooth leaves are used indifferently. These leaves are changed daily, and are generally in consequence clean and fresh-looking.

No covering is worn on the upper-part of the person ; but most of the females I have seen had necklaces of coloured earthenware beads (made by themselves they told me) which hung down to their waists in numerous folds ; and nose, ear, and hair ornaments, sketches of which will be found in the accompanying engravings, were common amongst them.

Their hair was generally of the shock order, but was gathered rudely into a knot at the back of the head, and fastened by a string terminating at each end in a silver or brass button.

No blanket or other covering, I was assured, is permitted to these women at night, and their only remedy against the extreme cold which often prevails in the hilly region they inhabit, is to sleep between two fires.

The origin of the strange costume they have adopted, was thus described to me by the different parties of Puttooas, whom I questioned. Many ages ago, they said, the women of the tribe, being much given to fine clothes and naturally averse to soiling them, fell into a habit of dressing themselves in leaves whenever they had occasion to clean out the cow-houses or to perform any other menial office. On one occasion when thus employed a Thakoorani (Seeta some said, but the majority did not seem sure of her name) appeared to them and commanded them as a punishment for their pride, never again to wear clothes, or to appear in any other dress than that in which they then stood. Should they violate this command, they firmly believe that they would sooner or later be devoured by tigers. In Keonjur, I am told by Dr. Short of the Madras Army, who has lately visited that Killah, that the legend is somewhat differently told, and that the dress is said to be worn in obedience to the commands of a Rishi. The same belief, however, appears to prevail in Keonjur as in Dhekenal, on the subject of the penalty which awaits those who presume to discard their present sylvan attire, and it is probably owing to the dread which this belief inspires, that even children of an age at which Ooriah girls usually go naked, are made to wear their little apron of leaves.



BALLET PUTTOOESQUE



A GROUP — KUMLEE AND HER FRIENDS

huts, the whole not larger than the house of a flourishing Ooriya ryot.

The Puttoos do not themselves own land, although they sometimes, we were told, assist in its cultivation. Their pursuits are chiefly those of the chase. They use the bow and arrow, and hunt with dogs, killing deer, hogs, and not unfrequently snakes, of the flesh of which and especially of that of the *Python molurus* they are very fond. They appear to be nearly omnivorous, nothing coming amiss to them except cow's flesh, from which they probably abstain either from fear of the Hindu Rájáhs, in whose territories they live, or out of deference to the prejudices of their Hindu neighbours. Their usual food, however, consists of roots and the seeds of jungle grasses. We found three different kinds of roots in their houses which were called by our Ooriya attendants *toonga*, *kurba* and *panee aloo*. We took some specimens of each to camp and had them cooked for dinner, but the experiment was not encouraging. Without being absolutely nauseous, they were all insipid and had an earthy flavour which was decidedly disagreeable.

No distinctions of rank exist among these people. One and all call themselves Pudhan, the title which the Ooriyas give to the headman of a village. Thus the husband of Kumlee, that most uncomely damsel who stands in the sketch with head averted, looking, as she did in truth, the very picture of sulkiness, is called Mootee Pudhan, and so on with the happy owners of the other ladies who sat for their portraits. They have no distinction of castes. Some of them told us indeed that they should object to eat with low caste Hindus, but this of course was a mere piece of bravado, intended for the ears of the Hindus who were with us; as no Hindu, however low his caste, would consent to join in their meals.

They pay no rent to the Rájáhs on whose lands they live, but they are expected to furnish him, when required, with spirits manufactured from the flowers of the mhowa and with the honey of the wild bee. They are forced also to carry his baggage when he marches through his estate, and to assist on the occasion of his hunting excursions in beating the forest.

The Dhekenal Rájáh declares, that the Puttoos are Hindus, and that they make offerings to the village deities, but although, as may be

seen from the legend by which they account for the peculiar costume of their women, they appear to recognise the existence of the Hindu deities as beings capable of exercising an influence over their actions, they uniformly denied to me that they worshipped any deity or paid respect to any image whatsoever. There were certainly no images of any kind in the vicinity of their huts, and they have no priesthood among them. Their religious homage they assured us was confined to the nameless spirits which they believe inhabit the woods and mountains. When they find a wild grape vine or a wild plum tree more than usually fruitful, or when they chance upon a spot rich in the roots or grasses upon which they subsist, they make an offering to the genius loci of a fowl, a goat, or a little rice and spirits, and address to him a prayer in which the terror which overshadows the lives of this forest race finds touching expression. "Lord, let the bears and the tigers flee when they see us. Let them not meet us." The only festival of a religious character, which they appear to have, occurs in the month of Bysakh, when they offer sacrifices and pour out libations to the manes of their deceased ancestors. They bury their dead, and, as far as I could learn, without any ceremonies worthy of note.

Marriages are arranged by the parents of the parties and are scenes of revelry and drunkenness. On these occasions all the members of the tribe within a reasonable distance assemble at the bride's house and escort her with music, and dancing to the house of the bridegroom, where the women wash her feet in water tinged with turmeric, after which the elders of the community perform the marriage ceremony. This consists, apparently, in each elder laying his hands in succession upon the heads of the bridal pair, and in tying their thumbs together with a thread. A grand feast ensues, in which the men and women eat apart from each other, and the night is afterwards spent in dancing and drinking. The festivities continue for three days. If the first wife prove unfruitful, the husband is at liberty to take another, otherwise they adhere to one wife. The husband, we remarked, has the same objection to mention his wife's name, that is observable amongst the Hindus. Not being aware of the relationship of Kumlee to Mootee Pudhan, we asked the latter, what her name was, and could not account for his

embarrassed look until we learnt from another Puttooa, that she was his wife.

The Juanga language bears no resemblance to Ooriya or to any other dialect with which I am acquainted. A list of words and phrases, which I have collected, is, however, given below, and those members of the Society who are familiar with the dialects of the Coles, Santáls, Goands, Sowrahs, and other hill tribes to the North and West of the Tributary Mehals, will be able to say whether the Juanga bears an affinity to any one of these, or is, as the tribe themselves assert, a totally distinct language. In the latter case, we must suppose that the Juangas are the remnant of a people vastly more numerous than their descendants. It is scarcely possible that a race so numerically weak and scattered over such a limited area, should have originated anything more than a dialect of some one of the languages, spoken by the more powerful tribes in their neighbourhood. I imagine, they will prove to be merely an offshoot from one of the great forest races which have, for centuries, if not for ages, inhabited the mountainous region which extends from Mirzapore to the shores of the Bay of Bengal. Had they ever formed a race of any importance, their peculiar habits could hardly have failed to attract attention, and to have been chronicled among the marvels of the East. Our knowledge of the hill and forest tribes of India is still, however, to our shame be it said, very imperfect, and it is quite within the bounds of possibility that Juangas or other people bearing a close affinity to them may hereafter be found in localities far distant from the Tributary Mehals of Cuttack.

Since writing the above my attention has been drawn by a Madras friend to the Coorumbos of the Wynaad forest, in Malabar, and the Chenchoos of the Masulipatam and Guntoor jungles, as tribes whose women are said to adopt a similar costume to the Juangas, and the following extract has been sent me from Pharaoh's Gazetteer, p. 546. "Twenty years ago, the females of a degraded caste of Holiers, used to come into Mangalore with no other covering but some thick branches of a bush tied to their waist in front, and the same behind. They have now substituted a cloth for the leaves in front." It would be interesting to ascertain whether the resemblance between the Juangas and the tribes mentioned above, is confined to

the dress of the females, or whether it does not extend also to language and customs. In the former case, it would be tolerably certain, that these forest races have sprung from outcaste or persecuted tribes, which have, at various times, been driven to the jungles, and have naturally enough without any knowledge of each other, adopted a covering of leaves from inability to procure a more convenient material; in the latter, an additional argument will be afforded for the popular belief, that the hill and forest tribes are the aborigines of India, and we shall have gained an important step in our knowledge of the geographical distribution of these little known races.

Vocabulary.

| <i>English.</i> | <i>Juanga.</i> |
|-----------------|------------------------------|
| Fire, | Nélye. |
| Water, | Da or Dagé |
| Earth, | Nuttub. |
| House, | Heea. |
| Man, | Moolusso. |
| Woman, | Khemé chélo or Juangurrakee. |
| Child, | Hooale kee. |
| Boy, | Koosnunde. |
| Girl, | Korchetán.* |
| Tree, | Seemsee. |
| Food, | Moorke Lukooa. |
| Stone, | Oola. |
| One, | Minna. |
| Two, | Bana. |
| Three, | Teelooko. |
| Four, | Chalooko. |
| Ten men, | Dench dik. |
| Cow, | Oopye. |
| Tiger, | Keelo. |
| Horse, | Ghorardendite. |
| Rice, | Runkoo. |
| Sun, | Béló. |
| Moon, | Nerango. |
| We are, | Aynde asike. |

| <i>English.</i> | <i>Juanga.</i> |
|-----------------|----------------------|
| You are, | Ramde masíké lokéra. |
| I am, | Aynde asike. |
| To give, | Dinkee mintuk. |
| To come, | Mendeldul koa |
| To go, | Heena daee. |
| Mother, | Byee. |
| Father, | Báa. |

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*On the origin and progress of writing down historical facts among  
the Musalmans.—By Dr. A. SPRENGER.*

There has been a time, when every Arabic, Persian or Turkish work containing the history of Mohámmad and of his successors, or any part of the history of the East—even if it referred to the antediluvian period—was considered as a source of information, the authenticity of which was above all doubt or question. It is superfluous to show how uncritical such a proceeding is, and how much wiser it would be for the historian to leave blanks in the chronicles of this world, than to fill them up with such uncertain materials. I believe, I was the first writer who attempted to submit the sources of the biography of the prophet of the Arabians, to a critical enquiry, in my *Life of Mohámmad*, Allahábád, 1851. The nature of the book did not enable me to enter so fully upon the subject, as it appeared to me to be necessary, nor was I then in possession of the materials which I required for the purpose. Since then, it has been my good fortune to be able to make a more complete collection of works bearing on this subject, and on cognate matters than there exists any where else, and it is therefore, in my power to throw light on some of the details connected therewith, which I then considered to be involved in great and hopeless obscurity.

The first question which a philosopher would ask of an Arabist, who talks of original works on the biography of Mohámmad, is probably this: When was the first biography written? He would answer, that the earliest work which we possess is that of Ibn Isháq, who died 141 years after Mohámmad. An age in which a religion

can develop itself against the truth of which we entertain doubts, must be stronger in faith than in reasoning, and we might expect that in 141 years, a number of fables would grow up regarding its founder among his followers. The philosopher would therefore, probably question our Arabist: Whence has Ibn Isḥāq derived his information? Had he any written records or only traditions? I venture to assert, that none of the orientalisists, who, previously to myself, have written on the Life of Moḥammad, was prepared to give a reply. Our Arabist would probably have said, the records consisted of traditions. And as he himself as well as every body else would have taken "traditions" in our own sense of the word, he would have been totally wrong, because there is a wide difference between "*ḥadyth*" and what we call "tradition;" though the former, for want of a better term, is usually translated by the latter.

Before we can answer the question "had Ibn Isḥāq merely oral sources of the biography of Moḥammad or written ones?" it is necessary to show whether the Moslems, during the first century after the Hijrah, did write books at all. With a view of throwing light on this question, I give here an abstract of a very important monography of the Khatyb Baghdādī (d. 464 or 465) which is entitled *تقييد العلم* and consists of 180 pages.

I.—*Sayings of Moḥammad, from which it appears that he did not approve that his followers should take his sayings to paper or have any other book but the "Book of God."*

1. لا تكتبوا عني شيئا سوي القرآن وقال الصغاني غير القرآن ثم اتفقا  
فمن كتب عني غير القرآن فليمحاه

"Do not write down any of my words, except the Qorān. (In the text of Ḥaghāny is "besides the Qorān," in what follows both texts agree). Any one who has written down sayings of mine besides the Qorān is to expunge them."

In two versions of this *ḥadyth* of Abū Sa'yid Khodry is added "and he that says intentionally a falsehood on any authority, will find a place in fire."

2. قال [ابو سعيد الخدري] استاذنت النبي ان اكتب الحديث فابي  
ان يادن لي

"Abū Sa'id Khodry, (d. 74,) relates, I asked permission of the prophet to write down *ḥadythes* (i. e. his sayings and life) and he refused it."

This *hadyth* is also in Bokháry, and there is one version of it which runs “we asked him” and “he refused us.”

قال [ ابو هريرة ] خرج علينا رسول الله صلى الله عليه وسلم ونحن نكتب الاحاديث وقال ما هذا الذي تكتبون قلنا احاديث نسمعها منك قال كتاب غير كتاب الله اتدرون ما ضل الامم فبلكم الا بما اكتبوا من الكتب مع كتاب الله قلنا انحدث عنك يا رسول الله قال حدثوا عني ولا خرج ومن كذب على معتمدا فليتبوا مقعده من النار

“Abú Horayrah says: The prophet came out to us and found us writing *hadythes*. He asked us: What are you writing? We answered, *hadythes*, which we hear from you. He observed: You are writing a book, besides the book of God? Do you not know that it is writing books besides the book of God what has led the people before you astray. We enquired: Shall we relate *hadythes* of you, O prophet of God? and he replied: You may relate *hadythes* of me, there is no harm. But he that says intentionally a falsehood on my authority, will find a place in fire.”

In one version of this *hadyth* is added: Then, says Abú Horayrah, we made a heap of our writings and burned them فجمعناها في معيد واحد فالقيها في النار

دخل زيد بن ثابت على معاوية وسأله عن حديث فامر اناسا يكتبه . فقال له زيد ان رسول الله صلى الله عليه وسلم امرنا ان لا نكتب شيئا من حديثه <sup>مخافة</sup>

“Zayd b. Thábit paid a visit to the Khalif Mo’áwiyah, and he asked him for *Hadythes*, and ordered a clerk to take them down. Zayd observed: The prophet has commanded us not to write down any of his *Hadythes*. Upon this he expunged what had been written down.”

#### II.—*Sayings and examples of companions of Mohammad showing that it is not lawful to commit hadythes to writing.*

قال [ ابو نضرة ] قلنا لابي سعيد لو كتبتم لنا فانا لانحفظ قال لانكتبكم ولا نجعلها مصاحف كان رسول الله يحدثنا ونحفظ فاحفظوا عنا كما كنا نحفظ عن نبيكم

“Abú Nadhrah relates, we said to Abú Sa’yid Khodry, It would be a grand thing if you were to write down *hadythes* for us, we cannot recollect them. He replied, We will not write them down for you, nor shall we collect them in books. The prophet com-

municated them to us orally and we impressed them in our memory, you must do the same."

There is a more simple and apparently more correct version of this *hadyth* extant, it runs: "We said to Abú Sa'y'd, write down these *hadythes*," and he replied: "We will not write them down. Take them from us as we have taken them from the prophet."

In another version Abú Nadhrah informs Abú Sa'y'd that they have written down *hadythes*, and he ordered them to expunge them.

6. حدثنا فلان عن ابي الشعثا الحارثي ان بن مسعود كره كتاب العلم

"Abú Sha'tá relates that 'Abd Allah b. Mas'úd disapproved of writing down *hadythes*."

7. عن الشعبي عن عبد الرحمن بن عبد الله بن مسعود قال كنا نسمع  
الشي فنكتبه فظن لنا عبد الله فدعا ام ولده و دعا بالكتاب و تاخذته من ماء  
فغسله

"It is related by Sha'by (d. 105) that 'Abd al-Raḥmán, (d. 79) the son of 'Abd Allah b. Mas'úd said, that he (and others) were in the habit of writing down *hadythes* which they heard. 'Abd Allah (d. 32) observed it. He called a slave woman, who was his concubine, and he sent for our writings, and when she had brought him water, he washed them out."

8. حدث بن مسعود بحديث فقال ابنه ليس كما حدثت قال وما علمك  
قال كتبتة قال فاهلم الصحيفة فجاء بها فمحاها

"Ibn Ma'súd related a *hadyth* and his son observed, You are not correct. The father asked, How do you know it? The son answered, I have written it down. He ordered him to bring the roll and effaced it."

9. قال [ ابو بردة ] كتبت عن ابي كتبنا كثيرة فمحاها فقال خذعنا كما اخذنا

"Abú Bordah (d. in 103) relates, I filled several volumes with *hadythes*, which I had heard from my father Abú (Músà Ash'ary, d. in 42 or 52). He destroyed my writings, and said, Take the *hadythes* from us in the same manner as we have taken them."

Another version of this *hadyth* is, that Abú Bordah and a freed slave of his were in the habit of writing down the *hadythes* which they heard from Abú Músà. When he observed it, he washed out their writing, which was probably on Gazelle skins or parchment. In another version occur the words كتب عن ابي كتابا "I filled a book with what I heard from my father."

10. "Sa'y'd Ibn Abú-l-Hasan says, that none of the companions of the prophet knew a greater number of *hadythes* to relate than Abú Horayrah. When Marwán was governor of Madynah and affected with paralysis, he desired him to write them down, Abú Horayrah refused compliance saying, Transmit them as they have been transmitted to us. One day when he was off his guard he sent for him having previously directed a clever and trustworthy penman to be in attendance. Abú Horayrah related all his *hadythes* and the penman wrote them down. When he had done, Marwán said, Do you know that we have taken down your *hadythes*? Indeed I replied Abú Horayrah. Abú Horayrah desired that they should be read to him, and then he said, You now know them by heart and he effaced them."

11. قال [ابو كثير] سمعت ابا هريرة يقول ان ابا هريرة لا يكتب ولا يكتب

"Abú Kathyr relates, I heard Abú Horayrah say, I neither conceal a *hadyth* nor do I write one down."

12. قال [طائوس] ان كان الرجل يكتب الي ابن عباس يسله عن الامر فيقول للرجل الذي جاء اخبر صاحبك ان الامر كذا وكذا فانا لا نكتب في الصحف الا الرسائل والقرون

"Tāwus relates, A man was in the habit of writing to Ibn Abbās to enquire of any matter he wanted to know. Ibn 'Abbās said to the messenger, Tell your master, the answer to the question is such and such, and that we only write letters and the Qurān."

There are two other versions apparently of the same story: "Tāwus relates, We were with Ibn 'Abbās; and Sa'y'd b. Jobayr wrote down [his lecture]. They said to Ibn 'Abbās, They are writing. He stood up (went away) and said, If he was not a well behaved man, I should have done something severer than merely getting up." The other version runs: "When Ibn 'Abbās was blind, people from the 'Irāq made enquiries of him and wrote down what he said. There came a man of the 'Irāq, and Ibn Abbās did not open his lips until he had left his presence."

13. عن سعيد بن جبيران ابن عباس كان ينهى كتاب العلم

"Sa'y'd b. Jobayr (d. 95) states that Ibn Abbās used to interdict the writing down of *hadythes* (and laws)."

14. قال [سعيد بن جبيران] اذا كنا اختلفنا في الشيء كتبته حتي القى به ابن عمرو لويعلم بالصحيقة معي لكان الفيصل بيني وبينه

"Sa'yd b. Jobayr relates, If we differed on a point, I wrote it down with a view of asking the son of the Khalif 'Omar. But if he had known that I have any notes with me, our friendship would have been at an end."

III.—*Sayings and examples of Tábiēs (i. e. persons of the first century who did not know Mohammad) who disapproved of writing.*

15. Ya'qúb b. 'Abd al-Rahmán states that, his father related to him, I was present when 'Obayd Allah b. 'Abd Allah paid a visit to the Khalif 'Omar b. 'Abd al-'Azyz. The Khalif kept people in readiness who took down [the *hadythes*] he repeated. When he was leaving, 'Omar said to him, We have done something. 'Obayd Allah asked, What? 'Omar replied: We have written down all that you related. He asked, Where are the writings? and when they were brought to him he tore them up.

16. Mohammad relates, I asked 'Abydah, Shall I write down what I hear from you, and he answered: No. And then he said, I have found a book, shall I read it? and he answered: "No." In another version there is, "If I should find a book shall I read it before you?" instead "I have found a book, &c."

Mohammad (the Shaykh of Ibn 'Awn) relates also, "I said to 'Oyaynah, Shall I write down what I hear?" 'Oyaynah answered, "No." Then he said, I have found a book, shall I read it? He replied, "No."

17. Idrys b. Idrys relates: My father asked me: "Do you write down any of the *hadythes* I tell you." I answered: "Yes." He ordered me to show him my writings and tore them up.

18. حدثنا وكيع عن شريك عن مغيرة عن ابراهيم قال كنت اكتب عند عبيدة فقال لا تجلدين عني كتابا

Ibráhyim relates, "I used to write when I attended the lectures of 'Abydah," and he said: "Do not make a book of them."

The expression which is of interest to us in this *hadyth*, and which proves that they made a wide distinction between notes and a book is repeated in another *hadyth*, in which Ibráhyim, imitating the example of his teacher, cautions his pupils against collecting his *hadythes* in a book: حدثنا محمد بن سعيد الاصمهاني قال اخبرنا شريك عن مغيرة عن ابراهيم قال لا تجلدين عني كتابا

قال [سفيان] قيل لعمر بن سفيان يكتب فاصطجع وبكى وقال



اخرج على من يكتب عنى قال سفيان وما كتبت عنده شيئا كذا نحفظ

"Sofyán relates: Some body said to 'Amr, Sofyán writes down [your lectures]. 'Amr laid down and cried, and said, I will teach any one manners who writes down from me (i. e. my lectures). Sofyán maintains that he did not write down any *hadythes* whilst he attended his lectures, but he asserts, It was our habit to impress them in our memory."

20. Abú Bakr b. 'Abd Allah sent to Ibn Aby-l-'Aliyah, requesting him to write a *hadyth* down for him. Instead of answering he came himself to him and said: If I was writing down [*hadythes*] for anybody, I would do it for you. He repeated the *hadyth*, and Abú Bakr impressed it in his memory."

21. قال الضحاک لا تتخذوا للحديث كرايس كرايس المصاحف

"Dhahhák said, Do not collect the *hadythes* into regular books like the *Qorán*."

The word employed for books in this *hadyth* is *Karrás*, which means a fasciculus of ten leaves or twenty pages. Among the Arabs books consist of such fasciculi which are frequently not bound together, but kept loose in a port-folio, in order that several persons can at the same time read the book. There is another *hadyth*, in which this term is used. It is said of Layth that he disapproved of *Karráses* كرايس الكرايس.

22. عن ابى معشر عن ابراهيم انه كره ان يكتب الاحاديث فى كرايس

"Ibráhyim disapproved that *hadythes* be written into *Karráses*."

Of this *hadyth*, two other versions are extant, viz.: عن ابراهيم ان كان يكره الكتاب "Ibráhyim disapproved of writing." And قال ابراهيم "كانوا يكرهوا الكتاب" Ibráhyim said that they (his shaykhs) disapproved of writing."

#### IV.—*Reasons why they disapproved of writing down hadythes.*

23. ... اخبر معمر عن الزهري عن عروة بن الزبير ان عمر بن الخطاب اراد ان يكتب السنن فاستشار في ذلك اصحاب رسول الله صلعم فاشاروا عليه ان يكتبها فطفق عمر يستخير الله فيها شهرا ثم اصبح يوما وقد عزم الله له فقال اني كنت اردت ان اكتب السنن واني ذكرت قوما كانوا قبلكم كتبوا كتبها فاكبوا عليها وتركوا كتاب الله تعالى واني والله لا ابس الله بشي

"Zohry states on the authority of 'Orwah that the Khalif 'Omar intended to write down the *Sunan*. He took the opinion of the companions of the prophet on the subject, and they advised him to

commit them to writing. Before commencing, 'Omar thought proper to try the Istikhárah (to consult fate or according to the Mohámadan notion, to obtain an expression of the will of God) for one month. One day, after he had obtained the expression of the will of God, he said: It had been my intention to write down the Sunan, but I found that the nations who have been before you, have written books, and trusted upon them, and left the book of God. Never will I in any way do any thing what might emulate with the book of God."

Several isnáds are given for this *hadyth*, so that its authenticity seems to me to be beyond a doubt.

24. "Khálid b. 'Orfotah relates: I was sitting with 'Omar when there came a man of the 'Abd al-Qays tribe, who dwelled at al-Sús. 'Omar asked him, Are you A. B. the son of C. D. of the 'Abd al-Qays tribe? Answer: Yes. Do you reside at al-Sús? He answered, again in the affirmative. 'Omar struck him upon this with a point-less spear which he had in his hand. The man said, What is my fault? 'Omar upon this repeated the verse of the Qorán, 12, 1-3, and gave him three more strokes with the cane. The man again asked, What is the matter? 'Omar replied: You are the man who has copied the book of Daniel *نسخة دانيال*. The man said, Tell me what I am to do, and I will obey. The Khalif answered: Go and efface it with hot water and white wool, and do not read it nor give it to any body to read. And if I hear that you read it or give it to any one to read, I punish you severely. Upon this, he permitted him to sit down, and when he was seated, he said: I went and copied a book of the believers in the scripture. Then I bound it in red leather and brought it [to the prophet] and he asked: What have you in your hand, 'Omar? I answered, A book which I copied in order to increase the knowledge which we already possess. The prophet got very angry, so much so that he got quite red. We were just going to the Friday prayers, and the Anjár said, The prophet is angry—to arms! and they surrounded his pulpit. The prophet said: The revelation which has been given to me contains all others and seals them, and it is an abstract of them. My revelation is of unalloyed purity. Do not allow yourselves to be made confused and do not follow those who are confused, (the Jews and Christians.)"

25. "Qásim [d. in 103] a son of Mohamammad [was killed in 37, he was a son of the Khalif Abú Bakr] relates: 'Omar was informed that the Moslims had books. He very much disapproved of it and said: I have heard that books have made their appearance among you. God loves those things best which are most equitable and lasting. Every man who has a book is to bring it to me, and I will then see what is to be done. People thought that he wished to see what the books contained, and arrange matters in a manner which might satisfy all parties, and they brought the books to him. He burned them and said: Books will lead you to the same result as they did with the Jews and Christians."

26. "'Omar intended to write down the Sunnah, then it occurred to him that it was better not to commit it to writing, and he wrote orders to all the cities, that every body who had written down *hadythes* was to destroy them."

27. "Morrah (d. in 76 or shortly after) relates that, whilst he was sitting with 'Abd Allah [b. Mas'úd, d. in 32] Ibn Qorrah brought a book, saying, I found this book in Syria, and as I admired it I bring it to you. 'Abd Allah looked into it and said, Those before you rushed into ruin, because they followed their books and abandoned the scripture. Upon this, he sent for a basin of water and washed the book in it to efface the writing."

28. "Aswad (d. 74 or 75) and 'Alqamah [b. Qays, d. about 70] got a volume *صحيفة*, and they took it to 'Abd Allah. It was about sunset when they came to his house, and they were not let in immediately. When 'Abd Allah awoke, he sent his slave woman to see who had knocked at the door. She reported to her master that it was 'Alqamah and Aswad, and he ordered her to admit them. They told him that they had a volume which contained very excellent *hadythes* *هذه صحيفة فيها حديث عجب*. And he at once sent for water and effaced the writing, repeating the words of the Qorân, 12, 1-3, and he added, Occupy yourself with the Qorân and with nothing else."

Nos. 27 and 28 seem to be different versions of one and the same story. There are five other *hadythes*, in which it is said, that 'Abd Allah b. Mas'úd destroyed books, and they are, apparently, all different versions of one or two stories. The following are the facts contained in each:

Aswad relates: "Alqamah brought writings from Makkah or Yaman. It was a volume (or roll) and contained *hadythes* regarding the family of the prophet, and 'Abd Allah effaced it." *جاءه علقمة بكتاب من مكة او اليمن صحيفة فيها احاديث في بيت النبي فحاه عبد الله*

Aswad relates: "A man who was settled in Syria, came to 'Abd Allah with a volume, which contained some of the sayings of Abú-l-Dardá or some of his stories, and 'Abd Allah after he had read a good deal in it, effaced it."

*معه صحيفة فيها كلام من كلام ابي الدردا او قصص من قصصه*

This version is, in all probability, the true one. Abú-l-Dardá entertained notions which considerably differed from those of 'Omar and his party. And it is possible that this was the cause why 'Abd Allah destroyed the book. In the following version he says that the contents were heretical.

"Aswad saw some persons in the mosque who were reading a book, containing the praises of God, invocations, and blessings upon the prophet. He wanted to copy it, and it was promised to him after another man might have copied it who had already bespoken it. Some days after he found it in the hands of Ibn Mas'úd, who said, Are not the contents of this book mischievous, erroneous and heretical?" *قال الا ان ما في هذه الصحيفة فتنه وضلالة وبدعة*

Solaym, a son of Aswad relates: that he and 'Abd Allah b. Mirdás were reading a volume, which contained stories and passages from the Qorân,\* in company with a man of the Nokha' tribe. Ibn Mirdás, according to his own statement, had bought some volumes for money.† As he was waiting in the mosque—the place of rendezvous—for his friends, Ibn Mas'úd sent for him, and saying, The right path is the path of Moḥammad, &c. he destroyed it."

29. 'Amr b. Maymún Awdy [d. 71] relates: "I was sitting in the company of several persons at Kúfah, and there came a man who had a book." They asked, "What book is this?" he replied, "The book of Daniel *كتاب دانيال*." If the mob had not protected him, he would have been killed. What! they said, "You have a book besides the Qorân?"

\* صحيفة فيها قصص وقرآن

قال عبد الله بن مرداس و اشتريت صحفا بدرهم ٢

30. Ibn, 'Awn (d. 151) said, "The men of the first century who disapproved of writing held that principle, in order that the Moslems might not be detained by other books from studying the Qorân. And the ancient scriptures have been forbidden, because it is impossible to distinguish what is true in them from what is false, and what is genuine from what is not so. Moreover, the Qorân renders them superfluous."

31. "Sofyân Thawry (d. 161) said, Woe to those who deposit their knowledge on paper قراطيس. Yet Sofyân Thawry used himself to write down [hadythes] with a view of assisting memory and fixing the true version. But his wish, was that people might learn hadythes by heart. Several of the ancients assisted memory by writing hadythes down, and they taught them from their writings, but when they knew them well by-heart they expunged them, for fear, that people might rely solely on their books." This hadyth is related by Ibn Hanbal on the authority of Yakyà b. Sa'y'd, who heard the above words from the mouth of Sofyân Thawry.

32. "Masrûq said to 'Alqamah, Write down for us hadythes which are likely to be confounded. He answered, Do you not know that writing is not approved of? Masrûq said, I will destroy them when I have learned them by heart. Under these circumstances, said 'Alqamah, there is no harm in writing."

33. Sho'bah relates: "Khâlid Madzdâ [d. 141] said, I never wrote down hadythes unless they were very long, and then I destroyed them when I knew them by heart."

34. "Mohammad [a son of the Khalif Abû Bakr] was of opinion that a man ought to write down hadythes, but to destroy the writing when he knew them by heart."

35. "Mançûr b. Mo'tamir (d. 132) disapproved of writing, but subsequently he regretted not to have preserved his hadythes in writing."

36. The author says: Many men of the early ages destroyed their writings previous to their death or ordered in their will that they be destroyed. The following are instances of this practice:

Ibn Tawûs relates, that his father [d. 106] ordered him to burn his writing انه كان يامر [ابوه] باحراق الكتب.

Al-No'mán b. Qays relates, that 'Abydah sent on his death-bed for his writings and expunged them.

Sa'd b. Sho'bah relates, that his father [d. in 160] told him to wash out his books if he should die and to bury them; and that he acted up to his orders. Even during his life-time, whenever a number of writings from various people had accumulated, he sent his son to the place where the falcons were kept (?) to bury them there *وكان أبي إذا اجتمعت عنده كتب من الناس أرسلني بها إلي البازجة فادفنها في الطين*.

Hammád relates, that Abú Qilábah ordered in his will to give his writings to Ayyúb (d. 131) and if he should not survive, to burn them.

'Ysá b. Yúnos (d. 187 or 191) gave equally orders that his books should be burned.

Ibráhyim b. Háshim relates: The books of Bishr b. al-Háarith (d. 227) filled eighteen boxes and baskets, and we buried them *حدثنا إبراهيم بن هاشم قال دفننا لبشر بن الحارث ثمانية عشر ما بين قمطرو قوصرة*. Ahmad Ibn Hanbal, who was his contemporary, said, that he could not see the object of burying books. In reference to Bishr, I would observe that he did not propagate *hadythes*, either orally or in writing, except that he now and then recited one incidentally.

Awzá'y [d. 157] says, that the science of the *Hadythes* is a noble science, but since it had been deposited in books it lost the freshness which it had, when it was orally communicated and fell into the hands of persons, who have no vocation to cultivate it.

V.—*Sayings of the prophet shewing that he commanded those who cannot trust in their memory to aid it by writing.*

37. قال [ابو هريرة] ان رجلا من الانصار كان يجلس الى رسول الله فيسمع منه الحديث يعجبه ولا يقدر على حفظه فشكا ذلك الى النبي صلى الله عليه وسلم فقال استعن يمينك

“Abú Horayrah relates, a man of the Anṣār used to sit with the prophet, and to listen to his sayings. And he admired them but could not recollect them. He complained of the weakness of his memory to the prophet, and he said, Assist your memory by your right hand (i. e. write them down).”

There are a number of versions of this *hadyth*, all of which rest

on the authority of "Abú Qāliḥ from Abú Horayrah," and it is confirmed by a parallel ḥadyth of Anas b. Mālik, which is evidently identical with it and runs: *شكا رجل الى النبي صلعم سأل حفظ فقال: استعن يمينك*. "A man complained that his memory was very bad, and the prophet said, Assist it by your right hand."

قال [ عبد الله بن عمرو ] قلت يرسول الله اقيد العلم قال نعم

"Abd Allah (d. in 65?), a son of 'Amr asked the prophet, Shall I fix knowledge? and he answered, Yes. In another version is the addition: I asked, How shall I fix it? And he answered, By writing."

A version of this ḥadyth preserved by 'Amr b. Sho'ayb b. 'Abd Allah b. 'Amr b. al-'Aḥ from his father, from his grandfather runs *قال النبي قيدوا العلم بالكتاب*. "The prophet said, Fix knowledge by writing." The same saying is recorded by Anas, but the isnād is weak.

قال رافع قلنا يرسول الله صلعم انا نسمع منك شيئا فنكتبها قال اكتبوا ولا خرج

Rāfi' b. Khodayj (d. in 74, at the age of 86) relates: "We said, O prophet, we hear from you many things, shall we write them down? He answered, Write them down, there is no harm."

This ḥadyth is well authenticated. In one version it is preceded by the following story, whose authenticity is doubtful:

*مر علينا رسول الله صلعم ونحن نتحدث فقال ما تحدثون قلنا نتحدث عنك يرسول الله قال تحدثوا وامنوا من كذب علي متعمدا في جهنم قال ومضي رسول الله صلعم لحاجته ونكس القوم رؤوسهم وامسكوا عن الحديث وهمهم ما سمعوا من رسول الله فقال ما شانكم الا تحدثون قالوا الذي سمعنا منك يرسول الله قال اني لم ارد ذلك انما اردت من تعمد ذلك قال فتحدثنا قال قلت يرسول الله انا نسمع منك اشياء فنكتبها قال اكتبوا لاخرج*

Rāfi' b. Khodayj relates: "The prophet passed us as we were conversing." He said, "What are you conversing about?" We answered, "We repeat your sayings." He observed, "Do repeat them, but speak the truth, for he who intentionally attributes to me a saying which I have not uttered: goes to hell." The prophet had some business and went along. The people hung down their heads and refrained from repeating his sayings. The prophet asked, "Why do you no longer repeat my sayings?" They answered, "On account of the remark which we heard from you." The prophet said, "This is

not what I meant, I said, He who lies *intentionally*." Upon this, we continued to repeat his sayings. I asked him: "We hear from you many things, shall we write them down. He answered, Write them down, there is no harm."

40. قال [عبد الله بن عمرو] قلنا يرسل الله انا نسمع منك احاديث لا نحفظها افلا نكتبها قال بلى فاكتبوها

'Abd Allah b. 'Amr relates: "We said to the prophet, We hear sayings from you which we cannot remember, shall we write them down? He answered, By all means, do write them down."

There are thirty versions of this *hadyth* extant, which differ very slightly from each other. Thus in most of them is *شيئا* instead of *احاديث*, and in some the answer of the prophet is simply *نعم*. In some versions is added: *عند الغضب والرضا قال نعم انه لا ينبغي لي ان اقول الا حقا*: "We asked, Even if you are influenced by likings or dislikings?" and the prophet answered, "Yes, for I never speak anything but the truth." The *isnáds* for these thirty versions can be reduced to four. 'Abd Allah related it to his son, and he communicated it to his son, 'Amr, and after 'Amr the *isnáds* diverge very much. 'Abd Allah also related these words to his grandson Sho'ayb b. Moḥammad b. 'Abd Allah, who transmitted them to his pupils, and through several of them, it has come down to us. And finally, 'Abd Allah mentioned them also to 'Atá, and he related them to his son, 'Othman, who again told them to his pupils, and they preserved them. There is besides a version, which differs in expression from the above, and which has been heard from 'Abd Allah himself by Khálid b. Yazyd and by Zayd 'Ammy. Therefore, unless 'Abd Allah himself invented the story, it must be true.

41. قال عبد الله بن عمرو كنت اكتب كل شيء اسمعه من رسول الله صلى الله عليه وسلم فنهينني قريش فقالوا انك تكتب كل شيء اسمعه من رسول الله صلى الله عليه وسلم في الغضب والرضا فامسكت عن الكتاب فذكرت ذلك لرسول الله صلى الله عليه وسلم فقال اكتب فوالذي نفسي بيده ما خرج مني الا حق \*

'Abd Allah b. 'Amr relates: "I was in the habit of writing all those sayings I heard from the prophet, which I wished to remember. The Qorayshites prevented me, and said, 'You write down what you hear from the prophet, though he is but a man who is guided by his likings and dislikings.' Upon this I ceased writing, and I



mentioned the matter to the prophet, and he said, Write, by Him in whose hand I am, nothing proceeds from me but truth."

This *hadyth* has been taken from 'Abd Allah by Yúsof b. Nábik, and handed down from him by an isnád quite distinct from any other.

42. Abú Horayrah said, "No one of the companions of the prophet has preserved more *hadythes* than I, except 'Abd Allah b. 'Amr. But he used to write them down and I did not write them down."

There are several versions of this *hadyth* extant, in some is added, "He wrote them down and learned them by heart, whereas I merely learned them by heart. The prophet allowed him to write them down."

#### VI.—*Companions of the prophet who wrote down hadythes.*

43. عن طاوس عن عبد الله بن عمرو بن العاص قال الصادقة صحيفة كتبتها من رسول الله

Táwús relates "'Abd Allah b. 'Amr b. al-'Aç said, Çádiqah is the title of a book in which I collected sayings of the prophet."

44. Mojáhid relates: "I paid a visit to 'Abd Allah b. 'Amr, and I found a volume *صحيفة* under his couch. He prevented me from taking it. I asked, 'What is it, that you prevent me from taking it?' He replied: 'This is the Çádiqah (the Truthful Book) and contains what I heard from the prophet.' There was no one between me and the prophet, when the information which it comprizes was communicated to me. As long therefore, as I have this book, the Qorân and the Wahţ, I do not mind the whole world."

Mojáhid says: Çádiqah is a volume *صحيفة* in which he wrote down what he heard from the prophet, and Wahţ is a piece of ground which he gave away for the support of the poor.

45. Anas Ibn Málík says: "that Abú Bakr wrote down for him the laws regarding alms, which were sunnah of the prophet."

Hammád relates, "I took from Thomámah b. 'Abd Allah (d. after 110) a document *كتاب* of which he believed that Abú Bakr had written it for Anas when he appointed him to collect the alms prescribed by law. There was the prophet's seal impressed upon it, and it contained the laws regarding alms."

46. سمع عمرو بن ابى سفيان عمر بن الخطاب يقول قيدوا العلم بالكتاب

'Amr b. Aby Sofyán heard 'Omar b. al-Khattáb saying: "Fix knowledge by writing it down."

47. *Tárik* relates: "I saw 'Alyy, the son of Abú *Tálib* on the pulpit, and he said, I have no book to read to you except the *Qorán* and this volume (roll) صحيفة. It was attached to the sword which was provided with a ring of iron, and the rings, by which the sword was suspended were equally of iron. صحيفة معلقة في السيف. The roll contained the laws regarding the alms, as 'Alyy had received them from the prophet." *(sic)* حديد عليه حلقة حديد وكرانه حديد

According to another version of this story, which rests on the testimony of another eye-witness, it contained the laws regarding the sacredness of the territory of Makkah. In this version the roll is described: صحيفة معلقة في سيفه فيها اسنان الابل وشي من الجراحات. "The roll was attached to his sword, and there were wrapped up in it camel's teeth, and some implements for surgery."

48. 'Alyy said, "Fix knowledge by writing it down."

He also said, "Who will sell me knowledge for money" or according to others, "Who will sell me a roll صحيفة to write knowledge in it, for money."

49. *Shorahbyl* Abú (Ibn ?) Sa'd relates: *Hasan*, the son of 'Alyy addressed his sons and nephews, and said, "You are now small, but you will soon be big, do therefore learn knowledge (i. e. *hadythes*) and if any of you is unable to repeat them (from memory) let him write them down and keep them in his house."

50. قال [عبيد الله بن ابي رافع] كان ابن عباس ياتي ابا رافع فيقول ما منع رسول الله صلعم يوم كذا ما صنع رسول الله صلعم يوم كذا ومع ابن عباس الواح يكتب فيها

'Obayd Allah b. Aby Rāfy' relates: "Ibn Abbās came to Abú Rāfi' and said, 'Did not the prophet one day like this? Did not the prophet one day like this?' Whilst he was saying so, he wrote on tablets which he had."

51. Ibn 'Abbās said: "The best mode of fixing knowledge (*hadythes*) is writing."

52. Abú Sa'yid Khodry says: that they used to write nothing else but the *Qorán*, and the *Tashahhud* (a prayer).

53. 'Itbān b. Mālik (died under the Khalifat of Mo'awiyah) relates: "I had a sore-eye, and I wished that the prophet might

come into my house, in order, that I might say prayers in it. He came with some of his companions and said prayers. They talked of the mischief which the Moslems, who were not sincere, were doing and ascribed the greatest part of it to Málík b. Dokhayshim. The prophet said, Does he not profess that there is no god besides the God, and that I am his prophet? No man who makes this profession will go to hell. 'Itbán continues, This *hadyth* pleased me so much, that I told my son to write it down and he did write it down."

54. قال كنا اذا اتينا انس بن ملك وكثرنا عليه اخرج الينا مجال من كتب فقال هذه كتب سمعتها من رسول الله صلعم وقراناها عليه

If we went to Anas and bothered him much, he produced volumes of books and said: "These books (writings) contain what I heard from the prophet." And we read them before him.

This important story rests on a double isnád, and there are besides three other versions of it extant which run : قال كانوا اذا كثروا على انس بن مالك في الحديث اتاهم بمجال فقال هذه كتبها ثم قرأتها على رسول الله صلعم — قال كان اذا حدث فكثر عليه الناس جا بمجال فالتقاها ثم قال هذه احاديث سمعتها وكتبها عن رسول الله ثم عرضتها عليه — كان اذا حدث فكثر الناس عليه للحديث جا بصكال فالتقاها اليهم فقال هذه احاديث سمعتها من رسول الله صلعم وكتبها وعرضتها على رسول الله صلعم . . . . عبد الله بن المنني قال حدثني عماري النصر وموسى ابنا انس 55. بن ملك عن ابيهما انس انه امرهما بكتابة الحديث والاثار عن رسول الله صلعم وتعلمها وقال انس كنا لا نعد من لا يكتب علمه علما

'Abd Allah b. al-Mothanniy relates: "My two uncles, al-Nadhr [d. shortly after 100] and Músà, [d. after his brother] the sons of Anas b. Málík [d. 92] said, that their father ordered them to write down the sayings and example of the prophet, and learn them." For, he observed, "We never considered the knowledge of a man to be knowledge if he does not write it down."

56. "Al-Hasan b. Jábír (d. in 128) asked Abú Imámah [Çodayy] Báhiy [d. in Syria in 86] regarding writing down knowledge, and he answered, there is no harm."

57. 'Abd Allah b. 'Amr relates: "Several men went to the prophet and I was the youngest among them," and he said, "If a person, intentionally attributes to me a saying which I have not uttered, he will go to hell." When they had left the prophet, I

asked them: How do you repeat *hadythes* you have heard from the prophet? I find you are paying great attention to *hadythes*. They laughed and said, "all what we have heard from him we have con- signed to writing," *قالوا يا ابن اختنا ان كل ما سمعنا منه هو عندنا في كتاب*

There are two versions of this *hadyth*.

VII.—*Distinguished men of the first century who have not seen the prophet, but who approved of writing down hadythes and did so themselves.*

58. 'Abd al-Rahmán b. Harimālah [d. in 145] says, "I had a bad memory" (or according to Çayrafy's version, "and I could not learn any thing by heart") "therefore Sa'yd b. al-Mosayyab [d. in 90 odd] gave me leave to take notes."

59. *كان الشعبي يقول في الكتاب قيد العلم*

Sha'by [d. in 105 aged 77 years] used to say "Writing fixes knowledge." He also used to say, "If you hear anything from me write it down, and in the worst case on the wall." He also said, "Write down every information you collect."

60. *عن الأعمش عن الحسن قال إن لنا كتباً نتعاهدها*

Al-Hasan [Baçry? d. in 110] said, according to A'mash [d. in 148], We have books on which we place our reliance.

61. *عن أبي مجلز عن بشير بن نهيك قال كتبت عن أبي هريرة كتاباً فلما أردت أن أفارقه قلت يا أبا هريرة اني كتبت عنك كتاباً فأرويه عنك قال نعم أروه عنّي*

Bashyr b. Nahyk said, according to Abú Mijlaz [see p. 220]: I collected the *hadythes* which I had heard from Abú Horayrah in a book. When I was about leaving him I said, "I have collected your *hadythes* in a book, shall I propagate its contents on your authority?" He answered, "Yes, do propagate them."

62. *عن محمد بن سيرين عن ابن أفلح يعني كثيراً قال كنا نكتب عند زيد بن ثابت*

Kathyr b. Aflah said, according to Mohamammad b. Syryn [d. 110]. we used to write when we attended the lectures of Zayd b. Thábit [who used to write the revelation for the prophet and died in 45 or 48, or after 50]."

63. *عن ثعلبة بن نافع عن الحسن انه كان يكتب للناس العلم ويعرضه لهم*

Tamán b. Najyh relates of *Hasan* [Baḥrī? d. in 110] that he used to copy the *hadythes* for the people and rehearse them for them [with a view of correcting them].

64. عن سعيد بن جبیر قال كان ابن عباس يملئ على في صحيفة حتى املاها و اكتب في نعلي حتى املاها

Sa'yd b. Jobayr relates [d. in 95], "Ibn Abbás used to dictate to me *hadythes*, and I wrote them on a roll, till I had filled it and then I wrote on my shoe [they wear yellow shoes or boots]."

In another version it is stated, "I wrote the *hadythes* which I heard from Ibn 'Abbás on tablets, and when I had filled them I took my shoes (or boots) to write upon." A third version runs: كنت اكتب عند ابن عباس في صحيفة حتى املاها ثم اكتب في طهر نعلي ثم اكتب في كفي

"In the lectures of Ibn 'Abbás I used to write in my roll and when it was filled I wrote on the upper leather of my shoes (or boots) and then on my hand."

To expedients, like these, though perhaps not quite as bad, students and short-hand writers take refuge in our days if they are short of paper. The following *hadyth* shows that Ibn Jobayr subsequently made a fair copy.

عن سعيد بن جبیر قال كنت اسمع من ابن عمرو و ابن عباس الحديث بالليل فاكتب في واسطه رجلي حتى اصبح وانسخه

Sa'yd b. Jobayr relates: "I used to hear *hadythes* from 'Abd Allah b. 'Amr and Ibn 'Abbás, and I used to write them down on my two feet (boots), and the next morning I copied them." The words which I translate by "my feet or boots" run in another version على واسطه الرجل فاكتبه.

65. The pupils of Qatádah asked him whether they might write down his lectures? and he answered, What prevents you?

قال ابو قتادة الكتاب احب الى من النسيان

Abú Qilábah (d. 104) said: "It is better to write down than to forget."

'Abd Allah b. Mohammad b. 'Aqyl [d. after 140] relates: "We used to go to Jábir b. 'Abd Allah (d. in 70 odd at the age of 94 years) and ask him regarding the life (according to another version, 'regarding the *sonnan* or institutions) of the prophet, and we wrote it down."

In another version it is stated, that 'Abd Allah b. Moḥammad b. 'Aqyl was accompanied by [his relations], Moḥammad b. 'Alyy Abú Ja'far, and Moḥammad b. al-Hanafyyah. And in one version it is stated that they were provided with tablets *الواح* for writing.

67. *عن عبد الله بن حنبل قال رأيتهم يكتبون عند البراء بكفهم بالقصب*  
'Abd Allah b. Hans (?) relates: "I saw them in the lectures of Barâ [d. 72] employing their hands in writing with reeds."

68. 'Obay b. al-Mokattab says: "I saw them writing down the comments on the Qorân in the lectures of Mojâhid [who died at the age of 83 in A. H. 102]."

69. *عن عبد الله بن دينار ان عمر بن عبد العزيز كتب الى ابي بكر بن محمد بن عمرو بن حزم يا مرة انظر ما كان من حديث رسول الله صلعم اوسنة ماضية او حديث عمرة فاكتبه فاني قد خفت دروس العلم وذهب اهله*

'Abd Allah b. Dynâr [d. 127] relates: "that the Khalif 'Omar b. 'Abd al-'Azyz wrote orders to Abú Bakr b. Moḥammad b. 'Amr b. Hazm, See what *hadythes* on ancient institutions are extant and pay particular attention to the *hadythes* which 'Amrah knows, and write them all down, for I fear that the knowledge of *hadythes* will disappear, and those who know them will die away."

There are various versions extant of this *hadyth*. In one it is said, "He wrote to Abú Bakr b. Moḥammad at Madynah," and in one, "He wrote to the people of Madynah." See on Abú Bakr b. Moḥammad *suprà* p. 209.

70. *يقول [معمر] ان الزهري ربما كتب الحديث في طهر نعله مخافة ان يفرته*

Ma'mar relates: "Zohry frequently noted down a *hadyth* on the upper leather of his boot for fear it might escape him."

71. *معمر عن الزهري قال كنا نكرة كتاب العلم حتى اكرهنا عليه هولا الامرا فرائنا ان لا يمنعه احدا ( احد ) من المسلمين*

Zohry said according to Ma'mar: "We disapproved of writing down *hadythes* to such an extent, that we induced also those chiefs [who are not mentioned] to disapprove of it, but at last we saw that no Moslim forbids writing."

72. *قال [ابن اخي الزهري] سمعته يعني ابن شهاب يقول لولا احاديث تليها من قبل المشرق لنكرها لا نعرفها ما كتبت حديثا ولا اذنت من كتابه*

The nephew of Zohry relates: "that he heard his uncle saying: It is only on account of *hadythes* which come to us from the east,

and which we deny and do not acknowledge, that I write down the *hadythes* and permit them to be written down."

73. *Bijá b. Haywah* [d. in 112] said: *Hishám b. 'Abd al-Malik* asked me regarding a *hadyth* which I had forgotten, but fortunately I had written it down.

74. *Abú Sofyán* says: "*Salmán Saykary* used to write down *hadythes*, but I did not write them down."

75. عن منصور قال قلت لابيراهيم ان سالما اذا حدث تحزم قال ان سالما يكتب وانا لا اكتب

*Mançúr* relates: "I said to *Ibráhym*, if *Sálim b. Aby-l-Ja'd* [d. in 98] relates *hadythes*, he does so at full length but you seem to be conglomerated." He replied, "He is in the habit of writing them down and I do not write them down." In another version it is said لسالم اتم حديثا منك

76. *Mo'áwiyah b. Qorrah* said: "The knowledge of him who does not write it down is not considered as knowledge."

77. عن مسلم العلوي قال رايت ابان بن ابي عباس يكتب عند انس بن مالك في سورحة يعني الواح

*Salm (?)* says: "I saw *Abán b. Aby 'Abbás* write on tablets in the lectures of *Anas b. Málík*."

78. *Ayyúb* [d. in 131] said: "They blame us for writing down *hadythes*, though it is said in the *Qorán* 20, 54. The Lord preserves the knowledge thereof in writing."

79. *Mo'áwiyah b. Aby Maysarah* relates: "I saw *Abú Shaybah* writing at *al-Hakam's*, who had the *hadythes* written on papyrus." رايت ابا شيبه يكتب عند الحكم معه الحديث في القراطيس

80. *Yahyà b. Sa'yd* [d. in 144] said, "If I had written down all what I heard, I should be better contented with my position than I am now." [Yet we learn from the *Tahdzyb*, that he left writings which were used by *Hammád*].

81. *Hammád* [born in 98, d. in 179] relates: "*Jaryr b. Házim* and others send to me words. We intend to (collect and) write down the *hadythes* of *Yahyà b. Sa'yd*, and hope you will take a part in it. I met them, and we repeated to each other his *hadythes* and they wrote them down." قال حماد قال لي جرير بن حازم وغيره انا هممنا ان نكتب حديث يحيى بن سعيد فلو حضرتنا قال حماد محضرتهم و تذاكرنا حديثه بعد فكتبوا

82. Hammád b. Salimah [who was the author of several works هو صاحب تصانيف and d. 167] said: "that he used to go to his Shaykh and heard ten *hadythes*, more or less, and impressed them in his memory, then he went home and wrote them down."\*

83. Mo'atamir relates, "My father wrote to me when I was at Kúfah, Buy books كتب and write down knowledge, for wealth is transitory, but knowledge is lasting."

84. 'Abd Allah b. Idrys says, "My father used to say to me, Learn by heart, but attend above all to writing. When you come home, write, and if you fall into need, or your memory fails you, you have your books." "With all that," he says, "I have not written down any *hadythes* of Layth, or Ash'ath or A'mash." From this and the preceding passage it would appear that books found a good market.

85. Abú Çaliž Farrá asked Ibn al-Mobárak regarding the writing down *hadythes*, and he answered, "If we had them not in writing we could not learn them by heart."

86. Khalyl b. Ahmad says: "Whatever I heard I wrote down, and whatever I wrote down I learned by heart, and whatever I had learned by heart I found useful."

VIII.—*Various Hadythes of the Khatyb Baghdády bearing on the value of books.*

87. عن أبي الدرداء عن النبي تحته كنز لهما قال صحف علم خبا لها ابوهما

"The prophet said according to Abú Dardá that under the 'treasure' mentioned in the verse of the Qorân 18, 81, volumes containing knowledge are to be understood which had been concealed by the father of the two orphans for their use."

Ibn 'Abbás, according to a *hadyth* preserved by Bokháry and others gives the same interpretation to that verse.

88. قال ذوالرمة لعيسى بن عمر اكتب شعري فالكتاب اعجب الى من الحفظ ان لاعرابي ينسى الكلمة قد سهرت في طلبها ليلة فيضع في موضعها كلمة في وزنها ثم ينشده الناس والكتاب لا ينسى ولا يبدل كلا ما بكلام

Dzú-l-Rummah [d. in 117] said to 'Ysà b. 'Omár [d. 149], Write down my poetry, I like it better than if you learn it by heart. The Bedouins forget a word, in search of which I have spent a restless

\* Dzohaby says : لم يكن بحمد بن سلمة كتاب الا كتاب قيس بن سعد Hammád possessed no other book but that of Qays b. Sa'd [who was a companion of the prophet and d. in 60].



night and they put another word of the same measure in its place, and people repeat the wrong reading. A book does not forget, nor does it substitute one word for another.

89. قال [زهير] حدثنا موسى بن عقبة قال وضع عند — حمل بعير من كتب ابن عباس فكان على بن عبد الله بن عباس اذا اراد الكتاب كتب اليه ابعت الي بصيغة كذا وكذا فيسسخها ويبعث بها

Mūsā b. 'Oqbah [d. in 141, and left a work on the biography of the prophet, see p. 218 *supra*] relates, In the house of (the name is not legible,) the writings (autographies) of Ibn 'Abbās [a companion of the prophet, d. in 68] were preserved which would have formed a camel's load (equal to about six hundred weights). Whenever 'Ālyy b. 'Abd Allāh [d. in 113] a grandson of Ibn 'Abbās wanted a book, he wrote to him requesting him to send him such and such a volume, and he copied it and sent it to him.

90. Ibn Dāb [on whom see Ibn Qotaybah, p. 269] was frequently seen carrying a book, some one said to him that it was below his dignity, but he was of a quite different opinion

91. قال المبرد ما رايت اختص على العلم من ثلثة الجاحظ والفتح بن خاقان واسماعيل بن اسحاق القاضي فاما الجاحظ فانه كان اذا وقع في يده كتاب قراه من اوله الى اخره اي كتاب كان واما الفتح فكان يحمل الكتاب في خفه فاذا قام بين يدي المتوكل ليبول او يصلى اخرج الكتاب فينظر فيه وهو يمشي حتى يبلغ الموضع الذي يريد ثم يصنع مثل ذلك في رجوعه الى ان ياخذ مجلسه واما اسماعيل بن اسحاق فاني ما دخلت عليه الا وفي يده كتاب ينظر فيه او يقلب الكتب لكتاب ينظر فيه

Mobarred said, The only three men I have seen who were really devoting themselves to sciences were Jākitz, Fatḥ b. Khāqān and the Qādhiy Isma'yī b. Ishāq. Jākitz used to read every book, he could get hold of from one end to the other whatever its contents might be. Fatḥ used to carry a book in his boot (being a Turk, he evidently wore the wide Tatar-boots). Whenever he left the presence of the Khalif to say his prayers or for any other business, he took out his book and read on his way to his destination and on his way back again, until he again took his place in the presence of the Khalif. And whenever I paid a visit to Isma'yī I found him reading a book or seeking a book in his library to consult it.

92. Ibn 'Abbās Daghūly [d. 325] said, that he always had the following four volumes *مجلدات* with him: The book of Mozany [d



خزانة البصرة اكبر واعمر واكثر كتباً وفي هذه ابدأ شيخ يدرس علم الكلام على مذهب المعتزلة. "In this town is a library like that of Baṣrah. Both have been founded by Ibn Sowār. Those who visit the library with a view of reading or copying books get stipends. The library of Baṣrah is larger, in better condition and contains more books. To this library of (Rámhormoz) there is always a Shaykh attached, who teaches dialectic theology according to the system of the Mo'tazilites."

Another large library was at Shyráz in the palace which was built by the nephew and successor of 'Adhod aldawlah. The palace was the most extensive and splendid building that existed in those days and contained three hundred and sixty apartments, and one of them was devoted to the library, which is described by Ibn Banná in the following words: *وخزانة الكتب حجرة على حدة عليها وكيل وخازن ومشرف من عدول البلد ولم يبق كتاب مصنف الى وقته من انواع العلوم كلها الا وحصله فيها وهي ازج طويل في صفة كبيرة فيه خزائن من كل وجه وقد الصق الى جميع حيطان الازج و الخزائن بيوتا طولها قامة في عرض ثلاثة ادرع من الحشب المزوق ينحدر من فوق والدفاتر منضدة على الرفوف لكل نوع بيوت وفهرسات فيها اسمي الكتب لا يدخلها الا وجيه وطفت في هذه الدار كلها سفليها وعلوها*

"The library occupies a separate apartment. And there are appointed over it an agent, a librarian and a superintendent. These officers are chosen from among the most respectable persons of the place. The founder has procured for this library every book on every science and of every author. The apartment consists of a very long arched-room which stands in an immense Çoffah (a platform walled in on three sides and open on the fourth side towards the courtyard and provided with a roof, see p. 63 note). On every side of this arched-room are chambers (or recesses) and against the walls of the arched-room and of the chambers, are closets six feet long and three cubits wide. The closets are of wood lacquered with gold and silver, and the entrance into them is from above. The books are piled up upon the shelves of the closets. To every science a number of those closets is allotted and there are catalogues which contain the names of the books. Only persons of respectability are allowed to visit the library. I have gone over the whole palace."

The Fihrist of Ibn Nadym, who wrote in 377 or two years after

this description was given, seems to be the catalogue either of this or the Basrah library.

98. This and the following five paragraphs are taken from the *Ilmá* of the Qádhíy 'Iyádh [d. 544].

قال عبد الرحمان بن مهدي كان عند مخرمة كتب لابيه لم يسمعها منه قال الحكم ابن مقسم عن ابن عباس انما سمع منه اربعة احاديث والباقي كتاب وحكى ان اسحاق بن راشد قدم الري فجعل يقول حدثنا الزهري فسيل ابن لقينه قال لم القه مررت ببیت المقدس فوجدت كتابا له

'Abd al-Rahmán b. Mahdiy relates: "Makhriannah had books from his father, the contents of which he had never heard from him [yet he related the *hadythes* which they contained on his authority]". 'Abd al-Rahmán also relates, Al-Hakam, the son of Miqsam heard only four *hadythes* from Ibn Abbás, the rest he had from him in writing. He also says, Isháq b. Ráshid came to Ray and said, Zohry informed, &c.' He was asked, Where have you met Zohry? and he answered, "I have not met Zohry, but I found a book of his at Jerusalem."

Isháq b. Ráshid died during the reign of Abú Ja'far.

99. Awzá'y relates: "that he heard Thábit b. Ma'bad say, The diacritical dots are the light of a book," نور الكتاب العجم. Some persons said according to Awzá'y, Diacritical marks are required in difficult passages انما يشكل ما يشكل.

100. At the time of Málík b. Anas it was so common that the pupil first copied the *hadythes*, and then read them before the Shaykh, that Malik said to 'Abd Allah b. Moslimah Qu'naby. The transmission is more valid if you read to me than if I read to you قرأتك على سئل مالك فقلت له العرض احب اليك ام السماع فقال بل العرض فقلت له العرض احب اليك ام السماع فقال بل العرض.

"Hearing" means that the Shaykh relates or reads a *hadyth*, and the pupil listens to him. "Rehearsal" means that the pupil copies it and reads it to the Shaykh, who rehearses it.

101. سمعت عبيد الله بن عمر العمري يقول كنا ناتي الزهري بكتاب من حديثه فنقول له يا ابا بكر هذا من حديثك فياخذ فينظر فيه ثم يرده ويقول نعم هو من حديثي قال عبيد الله فناخذ وما قرأ علينا وما استجزناه اكثر من اقراره بانه من حديثه فهذا مذهب الزهري امام هذه الشان

'Obayd Allah b. 'Omar 'Omary said, "We took a book to Zohry which contained *hadythes* of his, and we asked him, Are these *hadythes* of yours? He took the book and looked into it, then he returned it, and said, Yes, these are *hadythes* of mine." 'Obayd Allah says, "We took the book [and propagated the *hadythes* on his authority] though he had not read it to us, nor did we ask him for an *ijázah* beyond the affirmation that the book contained *hadythes* of his. This is Zohry's system of propagating *hadythes*, who is the greatest man in this science."

102. قال الواقدي قال ابن ابي الزناد شهدت ابن جريج جا الى هشام بن عروة فقال له الصيغة التي اعطيتها فلانا هي حديثك قال نعم قال الواقدي فسمعت بن خريج بعد ذلك يقول حدثنا هشام بن عروة

Wáqidy relates: "Ibn Aby-l-Zinnád said, I was present when Ibn Jorayj came to Hishám b. 'Orwah, and asked him, Does the roll which you have given to A. B. contain your *hadythes*? and he answered, "Yes." Wáqidy observes, "I subsequently heard Ibn Jorayj repeat these *hadythes*, saying, I have been informed by Hishám b. 'Orwah."

103. Zayd b. Ayyúb said to Mohámmad b. Syryn: "Some body has left me his books by will, shall I repeat the *hadythes* which they contain quoting his authority?" And he replied, "Yes." Subsequently he said, "I do not tell you to do it nor do I tell you not to do it."

I refrain from repeating passages bearing on this subject, which have already been published and postpone collecting the information contained in Dzohaby's *Tahdzyb* for a time, when I may have more fully examined that work than at present. I may refer here to what I have said on writing in early days in p. 211 to 213 of this volume.

(To be continued.)

*Notes on the Iron Ore Statistics and Economic Geology of Upper Assam.—By Lt.-Col. S. F. HANNAY, communicated by the Government of Bengal.*

SIR,—Having on a late visit to Seeksagur obtained through the kindness of Capt. Holroyd, Collector, a few notes on the iron ore statistics of Assam in the olden time, as well as up to the present date, I have put them together in the hope that they may be found interesting, and perhaps draw attention to the vast extent of our iron ore resources in the shape of clay iron ores, I presume of the same description as those found and worked in Europe. Many of these beds lie stratified with the coal, and others, if not in a position conformable with veins of workable coal, are near enough to admit of the coal being made available for smelting purposes.

I note particularly the localities of Teeroogong and Hattighur, within one march of Seeksagur, where coal abounds in the Suffry and Teeroo valley, besides inexhaustable tracts of timber. Abundance of lime also is now to be procured in the Naga hills, as well as in the Morung district near Golahghat, of a description suitable to be employed as a flux, of the importance of which, in the smelting of iron ore the Assamese are entirely ignorant.

My own researches in regard to iron ores, have been altogether, I may say, on the South side of the valley; lately, however, the remains of iron scoriæ were found at the gorge of the Dergmoo river on the North bank, where there is iron ore in abundance.

I have not sent a great variety of samples of ore, as this is not the season for collecting them; I need hardly say, however, that I shall be most happy to attend to this at a future period, should there be any wish for further information as to the quality of the iron ores in comparison with those of other parts of India.

The following is a list of the samples now sent:—

- No. 1. Sample of pig iron from Teeroogong hill ore.
2. Ditto of ore, ditto ditto.
3. Sample of pig iron from Bosa Doyung ore.
4. Ditto of ore extracted from the plastic clay.

5, 6. Samples of ore—bearing plastic clay of Bosa Doyung.

7, 8, 9. Samples of clay iron from the Jeypore field.

10. Sample of ore from the gorge of the Dergmoo river opposite Dibrooghur.

11, 12, 13. Samples of lime.

In remote times and up to a certain period in the annals of Assam, the valley was undoubtedly under Western India influence, and for the commodities of salt and manufactured iron its inhabitants were indebted to their trade and intercourse with Gangetic India.

The period to which I allude dates from the commencement of the supremacy of the Ahorns, early in the 16th century. This people, a branch of the great Shan nation, by the overthrow of the Chooteeahs (descendants of a Western Indian race of Rajputs) became masters of the Upper, and Central divisions of the province and finally conquered the whole valley; which, with Indo-Chinese jealousy of foreign intercourse with the nations of the West, they closed to the people of India, and trade was entirely restricted to the Goalparah Chowkeys—then it was, that the inhabitants of Upper Assam, at least, became dependant upon their own resources in the articles of salt and iron.

In regard to the latter article, we have evidence throughout the whole of the Jorhath district that the smelting of iron was carried on to a great extent, both from the quantities of scorix visible at different points between Jeypore and the Bosa Doyung, and the number of native manufactured iron guns found throughout the province, (but particularly in the Seesagur district) varying in size from a matchlock barrel to the great gun at Rungpore (see note at the end of table No. 2.)

I cannot however do better than record the information I have received on this matter both historically and statistically through the collectorate of Seesagur.

In the year 1422 A. S, A. D. 1500 and during the reign of Deehingeeah Swarga Narain, on the defeat of the Chooteeah Rajah, after a war with these people, the Ahorns acquired many fire-arms, one of which was named "Meeta Hoolaug." The victors also captured many blacksmiths, and from this date blacksmith shops were established for the manufacture of fire arms, and other

measures taken by the Ahorn Rajah, for classing the iron workers under *Hazaree Keihs* and *Saikeaks* and they amounted at one time to 3,000.

Subsequently in the war with Turbuck in the year 1454 A. S., 1532 A. D. the Assam Rajah, Buddhi Swarga Narain, after having defeated and pursued the Turbucks as far as the Korotyah river in Northern Bengal, captured many cannons, fire-arms, and other weapons, from the defeated party. Again in the year 1549 A. S., 1627 A. D., after the retreat and discomfiture of the invading army of Said Abu Bakr, the Soobah of Bengal, the Rajah of Assam became possessed of many handsome cannons, both iron and brass, and other weapons, and he was thus induced to call in, from foreign countries, several able blacksmiths and brass-founders to instruct his own people.

The manufacture of guns and other fire-arms continued to flourish until the civil wars and rebellion of the Muttocks, which so disorganized the country, that during the subsequent ministry of the Bura Gohain, the *Khel* of blacksmiths and iron-workers became reduced to 500 in number and eventually to 100 on the invasion of the Burmese and its attendant evils.

At the present date, there are only from forty to forty-five persons in the Seeksagur district, who understand the smelting and working of iron ores, and but one or two blacksmiths who may have witnessed the manufacture of small arms; the manufacture of cannon ceased in the commencement of the civil wars.

Throughout the whole Southern Frontier zillah Seeksagur, i. e. from Jeypore to the Doyung River, iron ores are in abundance; and in former days, in several localities, large establishments were formed by the Assam Government for the smelting of these ores and the manufacture of iron.

The localities of Teeroogong hill and its vicinity about twelve miles S. E. of Seeksagur and of Hattighur further to the East, are considered the best, both as to the quality and quantity of the ores.

In the districts of Bosa and Doyung a ferruginous sand is washed from the plastic clay, which was smelted largely in former times, and still remains at the present day a field for the employment of the few remaining iron smelters.



In lower Assam the Garrow Haths of Pulashbarree and Gohain supplied iron hoes, manufactured by the Cossyahs; and these were largely imported into Upper Assam for Government purposes. This iron from its soft or malleable nature was considered the best for the manufacture of nails, fire-arms of small size, and the inner tubes of the large cannon; the iron of the Upper Assam ores being found best adapted for swords, axes, knives, shovels and hoes, &c.

At Teeroogong hill and Hattighur thirty or forty workshops were established for the smelting of the ores, and manufacture of crude iron. These workshops consisted of a master and four workmen, who could, in twenty-four hours, turn out eight pieces of crude iron, similar to the sample now sent. The forges commenced operations in the beginning of the cold, or dry season, and continued in work for six months, when the manufactured iron of the season from these localities was delivered into the Government storehouses.

The ferruginous sands of Bosa Doyung are deposited in plastic clay, in detached beds of variable size, and scattered over a wide expanse of both undulating and level country. The beds containing the iron oxide being found at a depth of 10, 12, 15 and 16 cubits under the surface.

To find the beds containing this ore some little prospecting is necessary, and the work generally takes from four to five days (vide table No. 1). The bed being found, six men are employed as follows. Two men dig out the lumps containing the oxide, a third takes these and places them at the passage of entrance into the pit, a fifth\* takes them outside, and the sixth forms them into a large rectangular-shaped heap 12 cubits long, 7 broad, and from 3 to 4 cubits high, and thus in about ten days, the labours of six men have collected in this heap about one thousand maunds of the ore bearing clay.

The heap is now divided into seven shares, which gives one share to the landlord, leaving six shares to be divided amongst the working party. The next process is the washing out of the ore, and this is accomplished in a large pit filled with water into which the lumps are thrown, and the separation of the ore is effected by stamp-

\* The fourth remains unaccounted for.—Ed.

ing with the feet, this operation occupying a period of ten or twelve days.

The washing out and collecting the ore having been accomplished, the smelting process is commenced, and a furnace made after the common Indian fashion on the spot.

The operations of smelting are carried on by five of the party, one of them being the *oustad*, *ojah*, or head-smelter, whose business is to supply ore and fuel when the furnace has been heated, and to draw out the melted lump of pig-iron from every fifteen seers of ore, which he elongates and cuts (as shewn with sample sent).

The process is simply that which prevails throughout India, besides the master there being two assistants, one man to blow the bellows, and another to bring the ore and charcoal, which is thrown into the heated furnace, in quantities of a chittack of ore with its accompanying charcoal at a time, no flux being used—in this manner working day and night, with two men, as a relief, thirteen pieces of crude iron were turned out of the ore furnace in twenty-four hours. The lumps of pig-iron averaging about four seers in weight were sold for two, three or four annas a piece, according to quality and the quantity of pure malleable iron they contained.

The following is a table shewing the number of persons employed, the number of days, and the expense of digging, washing and smelting one hundred maunds of the Bosa Doyung ore.

Table No. 1.

| Detail of work.                       | No. of men employed. | No. of days. | Total number of men. |
|---------------------------------------|----------------------|--------------|----------------------|
| In searching for the ore bed, .....   | 6                    | 5            | 30                   |
| To dig up ore, &c.....                | 6                    | 15           | 90                   |
| To wash the ore, .....                | 6                    | 11           | 66                   |
| To make charcoal, .....               | 6                    | 30           | 180                  |
| Smelting the ore, .....               | 5                    | 20           | 100                  |
| Grand total number of men employed,.. |                      |              | 466                  |

which at the rate of 1 anna 4 pie per diem is, . . . Rs. 38 13 4  
 1000 maunds of ore-bearing clay produce 100 maunds  
 of ore, which smelted with 200 maunds of charcoal  
 produce 266 pieces of pig-iron, averaging 4 seers in  
 weight, which, sold at 3 annas each, fetch, . . . . . 49 14 0

Leaving a balance of, . . . . . 11 0 8

*N. B.*—Presuming the foregoing table to be correct, it would appear that the out-turn of pig-iron from the ore is about 25 per cent.; and if, as I am told, 1 piece of pig iron of 4 seers weight is the produce of a basketful or 15 seers of the Teeroogong hill ore, the out-turn is much the same; an analysis of either of these, however, would afford the best test of their respective qualities.

The following is a table shewing the progress of the works carried on formerly in the fabrication of fire-arms and cannon, extracted, I believe, from old Assamese Government records :

Table No. 2.

| No. of black-smith's shops. | Names of fire-arms, &c. .                            | No. of fire-arms made in the month. |
|-----------------------------|------------------------------------------------------|-------------------------------------|
| 1                           | Small <i>hatnul</i> , or hand-gun, . . . . .         | 4                                   |
| 1                           | Large ditto, . . . . .                               | 2                                   |
| 1                           | <i>Pahlunga</i> , . . . . .                          | 2                                   |
| 1                           | <i>Ganthea Yomoonee</i> , . . . . .                  | 1                                   |
| 1                           | <i>Meeta Hoolang</i> , . . . . .                     | 1                                   |
| 1                           | <i>Baghmoorah</i> (or tiger-headed mouth), . . . . . | 1                                   |
| 2                           | Large cannon, . . . . .                              | 1                                   |
| 4                           | Larger ditto, . . . . .                              | 1                                   |
| 20                          | Still larger, . . . . .                              | 1*                                  |
| 50                          | Larger ditto, . . . . .                              | 1†                                  |

\* Four of this description made.

† Only one of this description made, which is the great gun at Rungpore.

Note.—Cannon and fire-arms continued to be manufactured from the year 1427 A. S. 1505 A. D. during the reign of Swarga Narain to the year 1636 A. S. 1716 A. D. in the reign of Rájáh Ruddra Singh. In the reign of Goureenath Singh that Rájáh prohibited the manufacture of the old match-lock and introduced the making of muskets.

*List of specimens subsequently forwarded illustrative of the Economic Geology of Upper Assam.*

1. *Kaolin Clay or Rooknunsee Peeta*.—This is the washed clay from a decomposing granitic rock, probably composed of siliceous and alumina. It appears to be infusible without admixture. A very short distance inland from the mouth of the Doza Panee, a small river on the upper Brahmaputra, large masses of this substance are found in different stages of decomposition, some in a state of powder and accompanied by debris of felspar and limestone rock. It can be procured in any quantity and can be brought down the Brahmaputra in small boats.

2. *Washed clay from a decomposing Felspar Rock*.—The decomposing felspar is deposited in large masses on both banks of the Degaroo river, Upper Brahmaputra, at the foot of the Northern mountain ranges; and in the same line East and West is a common deposit. The deposit is extensive, but its distance from the Brahmaputra would make its transport difficult and expensive.

3. *Washed clay from decomposed Felspar Rock or Marl*.—This is found in the vicinity of limestone, at the falls of the Namber river, Golaghát district. The deposit is large and accessible at all times, and, by means of the Namber and Dhunserree rivers, water transit is easy during the rains.

4. *Washed clay from decomposing Felspar Rock*.—This rock in a state of decomposition is found in the bed of the Namber river, under the falls, associated with the shell and slaty compact lime-

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The largest of the cannon made during the sovereignty of the Assam Rájahs is still visible within the fort of Rungpore. This cannon was presented to Rájah Rajeswar Singh by Bohikhowa Bur Phokun of Gowhatti.

It is fabricated entirely from Cossyah wrought iron, and is remarkably well finished, its dimensions are as follows:—

|                                                                |                  |
|----------------------------------------------------------------|------------------|
| Length from end of handle to sight on the breech, .....        | 5 ft. 10 inches. |
| Ditto from breech to muzzle, .....                             | 12 ft. 3½ in.    |
| Measurement round the breech, .....                            | 5 ft. 7 in.      |
| Ditto round the muzzle behind the ornamented ring of ditto, .. | 5 ft. 1 in.      |
| Diameter of bore, .....                                        | 0 6½ in.         |
| Total length of gun, .....                                     | 17 ft. 3½ in.    |
| Thickness of metal, .....                                      | 0 7½ in.         |

stone. The first washing of this rock is of a pinkish colour from reddish coloured specks in the stone, similar to that of the Degaroo, and the two rocks may be considered analogous.

5. *Ditto ditto*.—Ditto 2nd washing of No. 4.

6. *Washed clay from red marl deposit*.—This deposit apparently from a decomposing Felspar rock is in a state of marl on the road in the vicinity of Bur Pathur, Golaghát district. The out-crop is extensive, and the deposit looks of great extent. It is very accessible by means of the Dhunseree river and the road to Bur Pathur.

7. *Washed clay from pinkish colored marl*.—Jeypore coal measures, Upper Assam. This is not deposited in a regular stratum with the coal, though found close by. It is a deposit from a decomposing Felspar rock of which there are many varieties, and a very old deposit apparently, running along the edge of the low hills. It is plentiful and accessible.

8. *Tough clay bluish colored*.—This is the common tough clay or clunch of the Jeypore coal measures. To be had in any quantity. It makes a very good wash for walls and is no doubt a good pottery clay.

9. *Clay*.—From an extensive deposit in the bank of the Booree Dehing at Jeypore. This clay deposit apparently dips under the low hills at Jeypore, and covers a rubble containing gold.

10. *Black clay*.—Found in several localities in Upper Assam. A large deposit at the foot of the hills in Dopa Bur, near Gerghon, Seeksagur district; also visible on the Booree Dehing at Hooloo-goorie. Accessible, extent of the deposit unknown; that at Dopa Bur appears the largest deposit.

11. *Washed clay from ferruginous deposit*.—This is found in the bank of the Dibroo river, the deposit contains magnetic iron sand. The fishermen use this in colouring the walls of their houses and the ochre washed from it, is a very fine one.

12. *Tough clay*.—Banks of Dhunseree river, Golaghát district.

13. *Ditto ditto*.—Ditto.

14 to 25 (inclusive). *Tough clays*.—Of various shades and textures from the Brahmaputra bank and the Dhunseree river. These are given to shew the variety of clays procurable in the Seeksagur district, and visible on the banks of both the Brahmaputra and Dhunseree river.

These clays are first seen on the South bank of the Brahmaputra immediately after leaving Dekhoo Mookh. The bluish tough clay is first visible, and at the mouth of the Jansee crosses the Brahmaputra to Saulmarah, where an extensive native pottery work is established, supplying Upper Assam above the Dekhoo. A fine under-stratum of various coloured clays continues visible until past Kokilah Mookh, when the bend in the stream, and the sand deposit opposite Moghur, shuts them out; but I think the same clays will be found along the whole line of the extreme South bank running down into the great clay deposits of the Golaghát district and Dhunseree, where the section made by the river develops the same variety of clays, extending from what is called Mourah Mookh to Bur Pathur, and probably to Dhennapore. This clay deposit must be of great age and depth—some of the clays forwarded having been found under-lying a bank of gravel and sand 60 to 70 feet high. In many parts of the Dhunseree river, the clays have become mixed with a highly ferruginous marl, attaining to a state of sandstone. Laterites are also abundant in the bed of the Dhunseree, which shews these to be formed in the clays. An oxide of iron, consisting of small grains mixed with very hard laterites is washed from the whitish coloured clays at several points on the line of the river as well as inland. Proceeding upwards on the Dhunseree river, the land becomes higher above the Doyong river, and in the vicinity of the Namber, the clays are more indurated and of a slaty clay nature.

In the Namber the sulphureous hot springs are situated a few yards distant from the junction of that stream with the Dhunseree. At the springs nothing is seen but Felspar gravel. In the Dhunseree the next turn above the Namber, are several hot springs, containing salt. The bed of the river exhibits masses of Felspar rubble cemented together forming a hard rock, and large masses of fossil wood appear to be imbedded in this as well as lying in the stream. From the Namber to Bur Pathur, for a distance of nine miles the country is undulating with low hills, the soil bearing a profusion of timber trees, the nohar and toon the most conspicuous, and many rare and beautiful plants. Throughout this tract, which seems an offshoot from the Rengma Naga hills, there are many deep dells,

most of which according to native account contain poongs or springs of mineral water, similar to those exposed and known. The surface soil is a vegetable mould, but the small nullahs which are crossed expose clays and gravel, and some of the ascents and descents of the low hills are entirely composed of small felspar boulders and rubble. Within one and a half miles of the descent to the Bur Pathur plain at Hulgootee Jan, or pebbly brook, a fine bed of marl is exposed (vide No. 6) on one side of the nullah, a similarly coloured but more compact bed (probably containing iron) on the other side. Mr. Masters also mentioned that in the same nullah above this point there is a bed of white clay marl, similar to No. 3. The low hills and undulating ground stop abruptly, and the Bur Pathur plain is formed by these, running inland West from the Dhunseree river, turning round South and East, again meeting the Dhunseree river, enclosing a tract of land several miles in area, and mostly under rice cultivation. The deposits in the Pathur or rice-land are clays of the best description. Mr. Masters also mentions a deposit of white Kaolin marl visible in the bank of the river near one of the villages in a very convenient spot. Water is always abundant in the rice-land, several small streams passing through it, and one or two natural springs of pure water rise up directly under the fall of the high land.\* Viewed from the North, on entering the Pathur the scenery is very pretty, and altogether the site is promising and ought to sustain twice the number of inhabitants it does. A report on the several thermal springs which are known in the Golaghát district has been forwarded by Mr. Masters' Sub-assistant in charge. The heat of the water in the two I have visited, he makes 112°. The Namber river springs smell strongly of sulphur when fresh taken, and the water issues out of a gravel deposit in large quantities. No attempts, that I am aware of, have been made to dig in the direction of the spring, to ascertain the nature of the underlying strata, the upper gravel of felspar being evidently brought down and deposited by the river. From the continuous deposits of bluish hard clay in the Namber, the probability is, that the waters pass through this from beds of limestone, perhaps underlying this clay; the waters of the springs called bálee poong in the Dhunseree, and not half a mile distant from these, do not reach the

surface, but on digging through the sand, the water is found plentifully, and smells strongly of muriatic acid, affording, when immediately boiled in a small flat dish, a residue of sharp tasted salt.

Proceeding up the Namber river to the first falls, a distance of about two miles, no rocks in situ are visible on either side, only clays, and deposits of largish felspar rubble, the bed of the river being small felspar gravel, holding a great quantity of black metallic sand. In approaching the falls there are one or two springs, or jalyes, on the West or left bank of the stream. The fall itself is insignificant, being formed by a ridge of granite about 15 feet in height, over which the river leaps. On the right bank the low hills commence a short distance before reaching the falls, and in the bed of the river immediately under these the different limestones forwarded are found, together with the decomposing felspar rock, affording the specimens, Nos. 4 and 5 of the list, together with hard slaty clay, probably calcareous. The mass of granite forming the fall passes from West to East, it does not look stratified in situ, but some of the fragments break off like gneiss, and might be called stratified granite; it appears very durable, however, and not easily broken. In colour and its component parts it looks much like the red Aberdeenshire granite and takes a good polish; the breaking up of the slaty and stratified portions of the strata no doubt affords the black metallic sand of the Namber and Kalliance rivers, and both sands afford a good iron, if properly smelted. Immediately above the fall, the bed of the river is one continued layer of large boulders, which, however, have not been examined, but most probably they belong to the granitic formation. Finer, and larger falls are said to exist two days' journey further up the Namber river, but they are not very accessible. I have failed to find any traces of gold in the metallic sands of the Namber river. The sands of the Dhunseree river, however, and particularly below the mouth of the Kalliance river (which rises in the same range of hills as the Namber) contain gold according to native account, also the Kalliance river was in former times considered a prolific gold stream, the washings having been carried on close under the hills.

26. *Decomposing granite rocks, &c.*—High bank of Brahmaputra at Choonpoora. In the high bank of the Brahmaputra at Choon-



poora, boulders of this description are found, but they have been deposited there ages ago, probably from the vicinity of the limestone strata holding the decomposing property.

27. *Similar to proceeding (unbroken).*—Ditto ditto. Ditto ditto.

28. *Deposit from Brahmaputra after heavy rain.*—Found principally in the inland offshoots and *churs* of the Brahmaputra. It is of the nature of rotten stone. This is found sometimes in large quantities and requires to be scraped off as the river falls, and is evidently washed down from the decomposing rock associated with the limestone.

29. *Washed from calcined lignites, also of the nature of rotten stone or crocus martis.*—Large masses of true lignite are imbedded in the soft sandstones of the Booree Dehing, and large quantities of the same kind but less compact are to be procured in the bed of the Dhunseree.—From the true lignites of the Booree Dehing a substance suitable for pigments, as also for polishing metals, is procurable. The decayed fossil wood of the same localities (from a state of chert or flint) also supplies excellent rotten stone capable of giving the highest polish to precious stones. The Burmese lapidaries invariably use this substance in their lapidary work.

30. *Compact rock, supposed dolomite or magnesian limestone.*—This limestone is found both in the Brahmaputra and Dora Panee, but principally in the latter stream, and seems to be associated in situ with the accompanying granite and felspar rocks, forming the Kaolin clay, and in this case is a valuable addition to these as containing magnesia. This is procurable along with the Rooknunsee Peeta and decomposing granite and felspar rocks of the lower ranges, Upper Brahmaputra, and probably thus associated causes the decomposition of these rocks; some of the varieties of this marble, are yellow, streaked with dark colored delineations. All the rocks of this locality contain a quantity of very bright colored whitish pyrites, or sulphate of iron—the primitive lime marble in particular containing large quantities of bronze coloured and white pyrites of all the varieties of this mineral.

31. *A variety of No. 30.*—Ditto ditto. Ditto ditto.

32. *A variety of Nos. 30 and 32.*—This is also found in the Upper Brahmaputra of a purer white than the rocks of the same kind in

the Dora Panee. The rock is more easily frangible and appears to contain more magnesia. Ditto ditto.

33. *Primitive limestone*.—This rock is in situ in the first ranges of the Upper Brahmaputra from the Dehong to the Brahma Koond. The specimen is a good sample of the mineral as it might be required for purposes of ornamental work, particularly for pavements and table slabs. Boulders of the limestone for mortar purposes can be procured in any quantity during the dry season. The boulders of a large description of this, and the magnesian limestone, and the variety passing between serpentine and carbonate of lime with handsome granite, are found close up to the Northern mountains, but they could only be brought into use for ornamental work by having slabs cut on the spot which might not be a very difficult matter, provided protection could be given to the workmen.

34 and 35. *Shell limestone*.—From under the Namber falls. This is in large quantities and only requires to be quarried.

36 and 37. *Limestone*.—Found associated with Nos. 35, 36, and decomposing felspar and slaty clay. These limestones in their various beds, of which the extent is quite unknown, probably contain the decomposing power which affects the granite and felspars in the same manner as on the Upper Brahmaputra.

38 and 39. *Iron*.—Smelted from the ore (oxide of iron sand) washed from the plastic clays of Golaghát and Gilikha in the same district. These ores have been deposited no doubt along with the clays from the breaking up of granitic rocks under the influence of water, vide specimens, Nos. 26 and 27, the latter containing a quantity of metallic sand. But it is evident that in course of time, what was originally magnetic and non-magnetic iron sands, has become oxidized and altered. The appearance now being that of natural exuviae. Both these ores are found in extensive beds, throughout the Golaghát division inland, as well as on the banks of the Dhunserree river at Golaghát, and Dehing Gohainghát. The natives seem to think that the resources of these ores are inexhaustible, but this requires investigation. The quality of the ore is considered good, and, even under the rude processes adopted by the iron smelters, the manufactured iron ought to undersell that of the Cossyah or coal iron, if not the English bar iron, though the convenient form, of

English iron is always an inducement to smiths to work it into different articles of agricultural use, rather than take the trouble of working up their own native blooms, which also is more difficult to effect from the want of proper tools.

I am led to believe that the Golaghát ores furnish a very good percentage of *cutch* iron—twenty seers of charcoal, and twelve seers of ore, producing five seers of iron, forming a bloom, black, heavy and sonorous; but like the Cossyah iron blooms, I have found on trial, that they lose between fifty and sixty per cent. before being made fit for steel, or the formation of any cutting instrument. I am not sufficiently versed in the statistics of iron to offer any explanation on this point, beyond the idea, that the native furnaces do not contain sufficient heat to smelt thoroughly any ore which holds either quartz or clay; nor do ores of this kind answer in any furnace without a flux, for which their furnaces do not appear to be adapted, as I am inclined to think that a proper proportion of limestone introduced into a native furnace would cause it to run. However 45 per cent. from any iron ore is good, and there is no reason why even the native method of smelting should not be improved, so as to give 30 per cent. of really valuable malleable iron. The ores of the Golaghát district certainly offer a fair prospect of remuneration to the iron smelter, and I see no reason why with such resources at command, Cossyah iron nodals, which sell at twenty rupees per maund need be imported.

40. *Iron*.—From clay iron ore, Jeypore. This ore is not that which is found deposited conformably with the coal, but is found in beds throughout the whole range of low hills flanking the Naga mountains; and even amongst the clay slates, in these higher ranges we find the same strata. Reniform nodules are generally lying imbedded in a marly clay, and in some localities quite exposed. The amorphous lumps, are generally imbedded deep in the soil of the low hills, and in former times, this ore seems to have been excavated from the Tipam hill, the locality of a now extensive tea-garden belonging to the Assam Company, where the plant grows most luxuriantly. The present sample is from an amorphous clay iron ore, or hydrate of iron, dug from the face of the hill, forming the gorge of the Booree Dehing river at Jeypore. The quantity of

scoriæ lying about, shews the extent of the smelting in former days, but whether from this ore, or from other sources along the line of the river, I cannot say; my opinion is that these ores would answer well, smelting them on the English plan, but I think the smelting of clay iron ores like these could not be attended with either good or profitable results on the native plan.

41 and 42. *Iron*.—Smelted from the two descriptions of metallic sands in which gold is found in the Brahmaputra and in the hills inland from Jeypore. The difficulty of fusion without addition is a great drawback to the smelting of these ores, for they afford excellent iron, easily converted into steel. The magnetic black sand will not fuse without the addition of glass, and cannot be managed in native furnaces. The magnetic iron fuses, and no doubt, with sufficient blast heat, would furnish a good proportion of pure iron, I have not, however, completed my trials of smelting these ores so as to give a correct opinion as to their usefulness.

43 and 44. *Washed gravel*.—From the Degaroo and Tedding rivers, Upper Brahmaputra. These are no doubt metallic, but in all probability contain iron only.

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*Narrative of the Travels of Khwajah Ahmud Shah Nukshbundee Syad who started from Cashmere on the 28th October, 1852, and went through Yarkund, Kokan, Bokhara and Cabul, in search of Mr. Wyburd.—Communicated by the GOVERNMENT OF INDIA.*

At the request of Major Macgregor and Colonel Mackeson, I on the 28th October, 1852, taking with me six horses and six servants started for Ladakh, which it took me twenty days to reach owing to the quantity of snow (it being now winter) on the Ijogicbal mountain.

In the Ladakh valley the climate is very cold and only produces “*jorve*” and wheat, which can be obtained at every stage. Rice is brought from Cashmere and Manoo (I do not know where the latter place is.) It is sold at 4 or 5 seers for the Rupee. Travellers and strangers are hospitably received by the people. It is under the

rule of Maharajah Golab Singh, and the people live generally upon *tulkair* (parched wheat and barley) which they take with black tea (the latter is brought from Lassa) and *ghee* from Cashmere.

When they once put on their clothes they never take them off or change them until they are worn out. They are generally of black *puttoo*.

The people are idolaters and worship a god designated by them 'Manee.' All the brothers of a family have one wife common to them. They eat raw meat. Fuel for burning is scarce, and they use the dung of animals for fuel.

From Rodukh and Chantun they bring the shawl wool, which is carried upon goats. From Lassa they import green tea, musk-bags and *judwa*, (a medicine.) From Ludia they procure cloth, opium, spices and leather. From Yarkund *baraj*, China ware, and *lowar* (silk).

A few *Ferozas* (Turquoise stones) imported from Bokhara are found, used by the women as ornaments. The females go at all seasons of the year with uncovered heads.

Travellers, owing to the necessities of life being all imported, find living in the country very expensive.

Apples and plums grow here, and the trees are principally the willow and the poplar. I remained at Ladakh for a month and eighteen days, awaiting the arrival of a *kufilah*, and arranging for the procurement of animals for my further progress towards Yarkund. Travellers are obliged to carry every thing with them, nothing being procurable on the road, as it passes through an unpopulated country. The hire of a horse from Ladakh to Yarkund in the winter is 100 Rupees. These animals are all of the Yarkundee breed, and come in *kufilahs* from Yarkund, loaded with goods. For each animal they have to take a double set of shoes. The ordinary dress of travellers is a *posteen* and *senabund*, and coats of *puttoo*, gloves of leather, and long felt boots, they carry with them on their horses a carpet to lie upon and a blanket to cover themselves. The country is too cold for cotton clothes of any description.

On the 7th of January I started for Yarkund, the road to which is through a rocky barren country, and through defiles. In spring, about the time of the equinox, it is generally very stormy, and

there is a great deal of snow ; the road is blocked up for some three months.

From Ladakh to Lamakeet is five days journey. A stream coming down from the direction of Ladakh and known as the Shahyeak, flows past the latter place ; this was fordable. Lamakeet is merely a halting-place, it contains a few huts.

From Lamakeet to Ak Musjid is thirty marches. The country is totally uninhabited. The Kurra Koorum mountains have to be crossed on the road. There are two roads, known as the Maryhan and Ekdan ; the former is the summer road. There are three *kothuls* on this line. The tract between the Kurra Koorum range and Lamakeet, a distance of three days' journey, is called Dubsun, which, during winter, is blocked up with snow, rendering this road impassable. The Ekdan (snow) or winter road was, according to the people of those parts, blocked up for twenty-two years, and water accumulating above it, caused the snow at last to give way and they say that this was the cause of the great flood of the Indus in 1840. This is the route almost always now followed by the *kufilaks*, and is two marches shorter than the other.

I witnessed a curious phenomenon on this road ; the snow while melting did so at some distance from the ground leaving masses in the shape of large trees, from which hung icicles, and between which the traveller moved along ; and it seemed as if you were in the midst of a sea of crystal, from which innumerable colours were reflected, and moreover, on the top of the snow were large rocks and stones of a red and white colour. We have to pass through this sort of country for half a day's journey. The Kurra Koorum is a small mountain, but when a wind which is known as the *sootuk*, blows, the air becomes very rarified, and breathing becomes difficult. During the spring the north winds prevail and there are very heavy falls of snow, which frequently oblige *kufilaks* to return from whence they came. The *sootuk* frequently causes the death of horses ; if an animal dies on the road and there is no spare one for his load, it is buried and left there until its owner can go back and bring another from Ladakh. From the Kurra Koorum to the Akhtab mountains a journey of three days, there is no water on the road, and frequently when bad arrangements have been made and

no water has been carried along for the animals, horses on arriving at Akhtab drink so much that they die; the road traverses a pass through the Akhtab mountains, through which there are two roads, the Kullian and the Kookrai. On the Kookrai road, water and fuel are procurable, but this road is difficult in the summer, as it winds along the beds of torrents, at that season swollen by the melting of the snow. The people of Kunjoot, robbers by trade, infest this road during the winter, but it is free from them during the summer months. On account of these banditti, *kufilaks* frequently go round by the Kullian route, which is longer and more difficult, besides being dangerous from the continual moving of glaciers. It takes some six or seven days to get through the Kullian, after which four days' march brings you to Kurgulluk, a large place containing a bazar, and well populated. Here every thing is procurable, being brought from Yarkund.

From Kurgulluk to Yarkund it is three marches through a plain cultivated country, irrigated from hill streams. About half way you cross the Yarkund river, which, during winter is frozen and crossed on the ice. At present, there is a ferry with one boat. This of no great breadth, but is very rapid. The country is studded with numerous villages.

I reached Yarkund on the 17th February and remained there and in its vicinity for three months, during which period I was making enquiries regarding Mr. Wyburd, and sent a man for the same purpose to Aksoo distant eighteen marches. At every stage on the road there are buildings called *Wurtung*; where the authorities have men from the city to carry daks from Yarkund to Aksoo, and from Aksoo to China, to Biejun (Pekin). To this place it is six months' regular journey, but the dak arrives at Pekin in twenty days, an answer arriving to a message from Yarkund in forty; daily communications are passing between the two places. The dak men are mounted on their own animals; for the performance of this service they are exempted from taxation.

Half way to Aksoo, nine marches from Yarkund, the Chinese have built a new city called Inyshuhr (the new town) which is situated on the Kashgur river, here four roads meet, viz., one from

Kashgur, another from Yarkund, a third from Aksoo, and a fourth from Khoottan (a province of China.)

Whenever an army is required for any purpose, it is sent from this city. The Mahomedan city and the Chinese fort are separate. In the latter there is a garrison of from 15,000 to 20,000 men, they have guns but no sowars (cavalry). Their troops are all footmen.

Aksoo is a very fine city, containing springs of water. The climate is temperate. The residence of Seduk Beg, the present governor, is on a height in a fort separate from the city, at about the same distance as the Bala Hissar is from the town of Peshawur.

From Inyshuhr to a large place, Oochtoorfan, on the direct road to Pekin is three days journey. Travellers are not allowed to go by this route.

Najmoodeen, the man I sent to Aksoo, returned without being able to hear any thing of Mr. Wyburd.

Yarkund is a large walled city supplied with water from the Yarkund river, distant some three or four koss. It is a great place for fruit; here grapes, pomegranates, apples, melons, mulberries, plums, aloochas, cherries, and quinces, all grow luxuriantly. Yarkund is such a dusty place that the new moon cannot be seen, and when it rains, it rains mud; for this reason people do not wear any white apparel; their dress is long and loose; they wear boots. Travellers and learned men are much respected. The king of the country is always a Mahomedan, to him the people look for justice. The Chinese governor is designated the Umban, and his deputy Dalocah; they reside in a fort along with their troops who are all Chinese, and of whom there are some 6 or 7,000 here; the "Khalaie Shuhr," (Chinese fort) is separate from the town. They have little or no communication with the people of the country. Whatever they require they procure through the Mahomedan ruler of Yarkund. After five days I went and paid my respects to this authority, whose name was Afreedond, and title "Wauk;" he is the executive ruler and decides all matters after referring them to the Umban. The latter signs all passports. The actual walled city of Yarkund is not so large as that of Peshawur, but there are extensive suburbs outside. Horses are very numerous here, but the troops being all



Chinese unaccustomed to horses, accounts for their not having any cavalry.

The people generally are contented and well pleased with their rulers. There are no other taxes in the country save the land-tax, which amounts to about one-tenth of the produce.

After making full enquiries and not getting any information regarding Mr. Wyburd, I started for Kashgurb on the 27th May, and sent Myeefoodeen to Khoottan. From Yarkund to Kashgurb the country is cultivated, and along the road at regular stages the dāk is kept up. After three marches I arrived at Inghissar, a small town, having a Chinese fort and garrison of about one thousand men, situated on a commanding position. Water is abundant and fruits plentiful. I remained here a short time, and then proceeded to Kashgurb, which I reached after three days. I remained at Kashgurb, in order to enquire after the fate of Mr. Wyburd, for two months. The reason of this delay was as follows. The road between Yarkund and Kokan was closed in consequence of the ascendancy of Bizong Khoja, whose ancestors formerly ruled over Yarkund, Aksoo, Kashgurb, Khoottan, Inghissar and Oochtoorfan; the Umban of Kashgurb having by order of his superior the Yarkund Umban, ceased to grant passports to travellers by this route; and also because 'Aksukol Ingamat Khan, a deputy of the Khan of Kokan, who, according to custom, with the sanction of the Chinese authorities, was collecting tribute from certain subjects of the Kokan Khan (traders residing in the city of Kashgurb) had been ordered, on account of some former disputes, to desist from doing so. For these reasons the Kashgurb Umban refused to grant me passports until he received authority for so doing from Yarkund. Nyamut Khan also informed me that I could never get to Kokan without first receiving the sanction of the Khan of that place to proceed there, so I accordingly despatched Kasim Jan, a man of my own, with presents for the king; asking for his permission to proceed; and I myself returned to Yarkund to get passports, which I had the good fortune to obtain through the influence of Afreedond Wauk, the governor. Here I met with Nujeeboodeen, who had returned from Khoottan having been unsuccessful in obtaining any information regarding Mr. Wyburd. From Yarkund to Kurrakash

in Khoottan is nine days' journey. Khoottan is a district containing six towns, viz.: Kurrakash, Ilchee, Uronakash, Shukra Cheera, Kurria, and Tagh.

Kurrakash. There is a large river near to this place which is crossed by boats, and the horses here are taught to swim.

Ilchee is the residence of the Umban of the district; the name of the present man is Ulsh Beg,

Uronakash. From Ilchee this place is distant half a day's journey, and between the two the Uronakash river has to be crossed; in the season when this is shallow, the people of the country find *johurs*, which are described as precious stones, which when clear are valued at their own weight in silver. They are used by the Chinese for making handles of knives and plates of different descriptions.

Shukra Cherra. In this place they manufacture a great deal of silk and many carpets.

Kurria. This is also a great place for silk.

Tagh. The climate of this district is good; grapes are dried here to a great extent; the ordinary fruits of Yarkund are plentiful.

The men of Khoottan are extremely handsome, and by order of the emperor of China, the whole of the population have to go during the winter months to a place (name forgot) distant forty days' march, and there dig for gold, for which they respectively receive seven *puls* of silver (equal to about 30 Rs.) whatever be the result of their operations; the gold that is collected, all becomes the property of the government. All over the Yarkund country, Chinese coinage is in general currency.

From Yarkund, going by Aksoo, it is fifty-eight days' journey to Ihl, near to which the Russians have their frontier Cantonments, the head Chinese functionary in this place is called Joongtang.

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There are no Russians in Ihl itself, but this is one of the routes by which Russian goods find their way into China, and Chinese commerce passes up into the Russian territories.

After receiving my passports I returned to Kashgurb where I arrived on the ———, here I found that Kasim Jan had returned

with a letter from the Khan of Kokan, and I remained for about another month, making arrangements for my onward journey as I had to go without a *kufilah*.

Kashgurb is a considerable town surrounded by a fortified wall and supplied with water from running streams. To prevent an enemy during the time of hostilities from cutting off the supply, there is an extensive tank inside the town, large enough to keep the people supplied; one man holds the special office of keeper of the tank; the town is surrounded by numerous gardens, and tanks, and private residences. The Chinese fort is distant from the town about three koss in the direction of Yarkund. The builder of this fort was severely rebuked for building it in the direction of Yarkund in place of towards the frontier. The climate of Kashgurb is salubrious and fruits plentiful. The people have great intercourse with the Kokanese, and they are very similar to the latter in their manners and customs. The boundary of the Chinese territory extends to one march beyond Kashgurb on the Osh road.

On the 18th December I left Kashgurb, and after twenty-eight days' march through a mountainous, difficult wild country inhabited by wandering tribes, I reached Osh in the Kokan territory. I carried all my provisions, &c. upon five mules. There are no great streams to cross on this route, but about half way you cross over the Temkhdewan mountain, which is the most difficult portion of the road.

Osh is a small city near a hill called the Tukhti Suliman, on the top of which is erected a musjid. In this hill there is a large cavern which can only be entered by a man on all fours; in the midst of it water is found in a sort of tank. From the summit of the Tukhti Suliman, you have a commanding view over all the city which is at the foot of it. It is a dry hill without any vegetation upon it. The climate of this place is salubrious. From Osh it is two marches to Moorghela, another small city with an extensive bazar, and many hummams, schools, and seraies, a plentiful supply of water and numerous gardens; it is situated in the midst of a well cultivated country. From Moorghela to Kokan Khas there are two roads, the one over a "*murah*" or desert, and the other through a cultivated tract. It is distant two days journey, I arrived at Kokan on the —.

Kokund or Kokan is a large and thickly populated city; the houses are built of pukka bricks; they generally are only of one story, though there are a few of two or more. Houses here do not last long, owing to the dampness of their foundations; the soil is very moist, and during the winter there is a great deal of mud in the streets; it is so bad that people can only move about at that season on horseback, and horses frequently sink into it as deep as their shoulders; when storms of wind coming from the west prevail, they dry this up to a great extent. The city is a walled one; the principal officer in it, besides the Khan is the "Ming Bash," or prime minister, who performs the general duties of the Government; the military and civil establishments are all mixed up together. There is abundance of water every where, and in the city there are numerous fine bazars and extensive serais.

The name of the present ruler of Kokan is Khuda Yar Khan, he is a man of about 25 years of age, he has a brown beard and only wears his turban out of doors. His palace is situated in a fort which is separated from the town by a stream; it seems to be a place of no strength and has no command over the town; it has two gates, across which there is a chain, which has to be removed each time to admit of the ingress or egress of passengers; over one of these there is a balcony in which the king locates himself when he reviews the troops or upon high days and holidays. Both in the court yard of the palace and outside of the town there are guns. The army are armed with muskets, lances, knives, axes, and swords on the end of muskets; they consist entirely of Cavalry with the exception of a new Regiment of Infantry which they are forming and which may be some 3 or 400 strong; there is no regular army, but the troops consist entirely of Ooloos or Militia. Many landholders hold their lands from Government on condition of their being ready always to turn out a contingent when so required. The Kokanese under Kasim the Ming Bash, when they were defeated by the Russians at Ak Musjid, were about 10,000 strong and lost 20 guns, all that they had with them. These guns are drawn by horses two or three to each, they have men kept specially as gunners; gunpowder is made in the city; I do not know where they get their sulphur from, but there was lots of it exposed for sale in the Kokan bazar; saltpetre is manufactured on the spot.

On the occasion of great festivals, the Sowars amuse themselves at a game called "Koke Boree," a goat is killed and taken outside the city to a plain and a goal is marked off at some distance, the Sowars make a rush and there is a regular scramble for the goat, or for parts of it, which are immediately carried off to the goal, on arriving at which the flesh becomes the property of the carrier of it. There is sometimes such a resolute struggle for the pieces that men frequently get killed. The king himself sometimes joins in this pastime. They are fond of horse-racing, but practise it (by their own account) to enable them by their fleetness to escape from pursuing enemies; they all wear boots with large iron spikes on the heels of them; as also small caps (a sort of fez bent to one side) which out-of-doors they cover over with a *pagree*.

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Ak Musjid is forty days' march from Kokan. In the Kokan bazars, Russian goods and merchandize of all descriptions are common, the principal of which are nanka, (common cotton cloth,) chintzes, turbans, and fine cloths, fur, trays, boxes, &c. The principal road is by Ak Musjid. The tax upon these articles is collected at Tashkund, distant five days' journey from Kokan.

The exports of the country are Kokan chintzes, which are here manufactured of a very fine quality; the goods are sold to Badra-nashar merchants who carry them on camels, which are numerous; no Russians ever come themselves, there are only two in the country, and these were prisoners captured by Kasim at Ak Musjid. These unfortunates are now slaves. I saw them and, upon seeing their circumstances, it struck me that they might be the Europeans of whom I was in search, but I was soon undeceived. At Kokan I made every enquiry after Mr. Wyburd in all the bazars and serais, and from the people of influence. I also sent a servant by name Abdoolah to Tashkund, he returned without being able to procure any information. The only intelligence I received of any Europeans ever having been here were of Messrs. Martin and Allen,\* who

\* The Syud shewed me a scrap of paper which he got, and I found it was a good character given to a servant by Dr. Martin Honigberger, now in Cashmere, who formerly traversed these countries. The other name, Allen, is I suspect meant for that of Lieut. Conolly still called by the natives of Kokan "Khan Ali."

arrived within the reign of Mahomed Alli Khan, the late Khan, about fifteen years ago. The former departed and took the route by Russia, while the latter returned to Bokhara. I now took my leave of Kokan and started for Bokhara, the first stage was, 1st, Berharuk; 2nd, Mharrum; 3rd, Khojund, a town situated on the river Syr, having good bazars and many mosques; here also I enquired after Mr. Wyburd without success. 4th, Ribat, (a fort;) 5th, Arra Suppah, which is situated in a hollow on both sides of a stream; the Mullick of the place has his house on an adjacent eminence. This place is on the boundary between Bokhara and Kokan, paying tribute to neither, though nominally subject to Kokan. We had passports from the Khan of Kokan to take us as far as this, after which we proceeded without any. 6th, Ijour in the Bokhara territory. 7th, Kirghizwad. 8th, Jeezukh, a small town of which Kunnatshue is the present ruler. Travellers are stopped here, their baggage examined, and intimation of their arrival sent express to the Khan of Bokhara. 9th, Boolak Tash. 10th, Peshkobrook (five bridges). 11th, Samurkund, a large town situated on a stream of the same name, a tributary of the Oxus. This was the capital of Timour Sháh Koorghanee, in whose time there was a pukka bridge across the river, the remains of which now exist; there is a tablet upon it bearing date 986 Hegira. It contains many fine old mosques and has numerous seraies and schools, the king of Bokhara makes this his summer residence. From Samurkund there are good roads to Tashkund and Shuhrasahulz, the former distant fifteen days' march and the latter some five or six. The people of the country are generally pleased with their rulers and happy under their rule; there is little or no oppression. Not being able to learn or hear any thing of Mr. Wyburd here, I proceeded on my journey.

|                       |                                                                                                                                                                              |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12th, Dhola,          | } The road runs through a well cultivated district, producing wheat and grain of all sorts, and irrigated by canals from the river; seventeen marches from Kokan to Bokhara. |
| 13th, Kutta Koorghan, |                                                                                                                                                                              |
| 14th, Koosh-house,    |                                                                                                                                                                              |
| 15th, Ak Chali,       |                                                                                                                                                                              |
| 16th, Royi,           |                                                                                                                                                                              |

On the 1st of May I arrived at Bokhara, and put up in Muhulla Kasigram (potters) for a period of one month. I continued making enquiries in every direction regarding the fate of Mr. Wyburd. 1

met one person, that I at first thought might be he, a stranger who would not tell his name to any one, but upon my shewing him Major McGregor's English letter that I had with me from him, he could not read it, and moreover I discovered that this individual had spent some ten years in Cashmere, which convinced me that he was not the man I was in search of, besides which, this person had not the appearance of a European.

It is notorious in Bokhara that the king was the murderer, or rather caused the murders of Conolly and Stoddard.

Bokhara is a densely populated city, in the summer it is very hot and in the winter extremely cold ; there are stone-tanks in every street ; these are filled by water-cuts from the river, but for three months of the year, during which the leaves of the mulberry tree have been decaying in the water, people who drink from these tanks become unhealthy, and suffer much from the Guinea worm, which is a common disease in the country. There are several physicians in the city who are great practitioners in curing it by extraction of the worms. Water for the king's private use is brought from a great distance. In Bokhara are found merchants from Persia, Oorgung, Cabul, and Kokan, each of which places have their respective market-places. The Jews have also a separate division. The bázars are clean and kept in good order, and well stocked with merchandize of all descriptions. There are fifty seraies and three hundred and sixty musjids ; the town also is divided into three hundred and sixty mohullas or divisions. There are numerous hummams or baths. For every division of the town, the king has a news-writer, who supplies him with daily information of all that occurs, and weekly reports are sent in the same manner from the country ; for this reason the people fear him greatly, as he is acquainted with all their transactions. The present ruler Behadoor Khan styled Syud Ameen Nusseeroollah Khan is about fifty years of age. No great friendship exists between the governments of Kokan and Bokhara, but I know that an envoy went to Bokhara during my stay at Kokan, as on the road I met him returning accompanied by an envoy from Bokhara. Both in the Kokan and Bokhara states, gold and silver coins are coined and are current, the people are generally well off, though the subjects of Bokhara are the wealthiest, owing to their having a few

years ago plundered the Kokan country with an army. There is a brother of the Khan of Kokan's now at Bokhara; he had a dispute with his brother and sought refuge in Bokhara. There are some regular troops at this place which are drilled by Summund Khan, a Cabuli. The horses of Bokhara are superior to those of Kokan; I saw no Russians at Bokhara, and know it to be an ancient law that they are not allowed to travel within the boundaries of this state. The Russian *kufilaks* come direct to Bokhara and have to pay heavy duties upon goods upon their crossing the frontier. Not being able to procure any information regarding Mr. Wyburd, I suspected that perhaps he might be in prison, and so made friends with Meer Shah, the keeper of the prisons, from whom I learnt, and I feel confident, that no foreigner was there in custody; so leaving Khwajah Mahomed Shah, one of our fraternity, to continue the search and make enquiries, and with instructions to keep me informed if he should learn any thing about Mr. Wyburd, I myself started on my way back.

*From Bokhara to Cabul.*

On the 2nd June I left Bokhara.

1st stage, Mimleck. If you leave early in the morning you reach this place in the afternoon. At this season of the year it is so hot that people ride upon camels and not upon horses.

2nd, Kraool, water from small streams, country cultivated, provisions for cavalry and infantry plentiful.

3rd, Khojah Umbanik, left at sunset one night, and by day light next morning arrived here on a camel. Water here from a stream.

4th, Khasan, about the same distance as yesterday.

5th, Kuslice, a small town subject to Bokhara, from this place a road branches off to Shukur-i-Sulz, distant five marches.

6th, Shore Koodook; here water is procurable from a well; country now barren.

7th, Chul Boor: this is only an encamping ground; the water for the supply of travellers is collected in a tank, it is all rain water, and very little of it. (If an army was to move by this route they would have to carry all their water along with them); country sandy desert.

8th, Banks of the Amoo or Oxus. From Hushee the road all the way to the river traverses a sandy desert; there is no village or city



here ; there are two boats at this ghat (the property of the Bokhara king) ; the breadth of the river is very great ; you cannot distinguish a man's features across the stream ; it is more than four times the breadth of the Jhelum at Sounuggur ; one boat can make but two trips in the course of the same day ; all the *kufilaks* cross at this place. It is three marches from this ferry to Balkh : upon crossing the river the aspect of the country quite changes, you are now in a cultivated country covered with villages tolerably populated, I forget the names of the halting places, provisions of all sorts plentiful, even for an army ; there are no *Seraies* for travellers.

Balkh is an old ruined city, containing the remains of many old buildings. Hot winds blow here, as also occasionally the *Simoom* ; for fear of the latter, travellers seldom stay at Balkh itself but go on to Muzaree Shureef where there is a well known *Izeerut* and also a town. This is now the residence of Sirdar Uzul Khan ; it is considered healthier and cooler than Balkh itself. I could hear nothing of Mr. Wyburd here, so on the 23rd June I went a long night's march to—

1st, Yarh Kooryhan, this is a small city which is also called Khoollum ; the present ruler is Mahomed Shureef Khan. It is a cooler place than Balkh and the country is irrigated by numerous small streams.

2nd, Lungi, a short march through hills. A tax called *Khurygya* is here levied upon every horse.

3rd, Ghuznee Kuk, to-day's march is good for camels, and even for guns, which were taken up by this route when Mahomed Shureef Khan was turned out.

4th, Char Baghi Sultan, country hilly, road difficult, crossing many streams, no provisions to be got.

5th, Hybuk ditto, ditto.

6th, Saibagh.

7th, Khoorum.

8th, Rowee.

9th, Doab.

10th, Budder.

11th, Kamurd.

12th, Saighan.

13th, Akrabuk.

} Water is plentiful, road tolerable for camels, provisions scarcely procurable, road passes up and down hills during the whole distance.

14th, Bumam, here are the remains of an old city formerly called Golgoolla, it was destroyed by Jengh Sing Khan.

15th, Lopehi.

16th, Kaloo, this is a very difficult march.

17th, Gurdun Daver.

18th, Takanah.

19th, Kote Ushnoo.

20th, Cabul.

This route passes over Dunda Shikun (breaker of teeth) and the Kaloo mountains as also over the Purypilan. The inhabitants along the whole route are notorious robbers, and for this reason *kufilahs* are always obliged to travel by day, but have even then always to be on the look out. Ghee, wheat, barley and fuel are procurable in places, but provisions are altogether generally scarce.

I arrived at Cabul on the 12th July, stayed there some time and then came by the regular marches to Peshawur, where I arrived some ten days ago.

The above information was taken on the 22nd November.

PROCEEDINGS  
OF THE  
ASIATIC SOCIETY OF BENGAL,  
FOR JUNE, 1856.

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At a monthly general meeting of the Society held on the 4th instant, at the usual hour,

A. Grote, Esq., Vice-President, in the Chair.

The proceedings of the last meeting were read and confirmed.

*Presentations were received,*

From Lieut. A. Trotter, a collection of fossils from Kohat.

On the proposition of Captain Thuillier, seconded by Mr. Woodrow, the best thanks of the Society were voted to Lieut. Trotter for the valuable collection of fossils sent by him.

2.—Some drawings of fossil bones from the same district by Lieut. Garnett, Engineers.

Professor Oldham read the following extract from a letter of Lieut. Garnett, Engineers, regarding the fossils, sent by Mr. Trotter.

“They have been selected as the most portable, and at the same time characteristic specimens of the fossil fauna of the valley of the Indus. The extent of the bone bed in this part of the Indus, as far as it is at present known, is limited to about eighteen miles of the river's course from the village of Choorlukkee to the mouth of Kohat Towy. Fragments are sometimes found five to seven miles from the banks of the river. The great depth of the ravines near Kooshalghur, and indeed all the way along both banks of the river, facilitates the search for the bones very much ;—some of the Khudds are 200 feet and upwards in depth. The tertiary beds here consist of a softish sandstone, generally of a light grey or green tint, with partings of red and grey marks. The strata have been slightly tilted since deposition, which has caused the sandstone to form parallel ridges of from ten to sixty feet high all over the valley.

These ridges of rocks have one side steep like a wall, whilst the side to which they dip is at a tolerably gentle incline. The dip of the strata is always conformable to that of the higher ranges in the vicinity. The whole of the valley of the Indus is highly interesting in a Geological point of view, but peculiar interest attaches to the part about Kooshalghur since the discovery of these fossil remains of mammals and reptiles of the Tertiary period. I discovered the first bone accidentally in laying out a road between Kohat and Kooshalghur in 1852, since then several thousand fragments have been brought to me. The people of that part of the country have been encouraged to search for the bones, and now nearly every villager at Kooshalghur has become a collector. Both men and children hunt for them when not employed in the fields. They call this "the harvest of bones." I have no doubt strata of the same age will be found on examination to extend along the greater part of the upper valley of the Indus. Mr. Greenough's map shews that they appear again in Scinde and near the embouchure of the river. In conclusion, I will only add that I shall be very happy to forward any interesting specimens which come to hand to the Asiatic Society at Calcutta, and also to supply any information in my power concerning these fossil remains, and the district in which they are found. As my professional duties afford me no leisure for prosecuting the study of the subject, I hope the Society will afford me some information regarding these fossils—they evidently belong to animals of several different types, and I am anxious to know with what known animals they are identified, or if referable to unknown species, what conjectures may be formed concerning them. With this view, I have numbered all the specimens sent, and have kept a duplicate copy for reference."

Mr. Oldham pointed out the great importance of obtaining further collections of fossils from these deposits.

3.—From H. Haughton, Esq., blocks of fossiliferous limestone from the farm caves near Maulmain.

4.—From the government of Bengal, a collection of Geological specimens collected in the vicinity of the Hurriogan Nuddee, by J. W. Masters, Esq., Sub-Assistant, Golaghat, and forwarded by Colonel Jenkins.

5.—From the Hon'ble Court of Directors through the Government of Bengal, a copy of the Catalogue of the birds in the India House Museum.

6.—From the Government of Bengal, maps of the districts of Beerbhoom, Maldah, and Twenty-four Pergunnahs for the Musuem of Economic Geology.

7.—From the Royal University of Christiania, Norway, the latest publications of the University.

8.—From Mr. W. Elliot, M. C. S., copies of Sanscrit MSS.

\* Jábál, Brihajjábál, Raha-ya, Kauisiki, Chetta, Sárira, Amritábindu. Bráhma, Gárbha and Itihása. noted in the margin\* obtained from the Library of the

Rájá of Tanjore.

Bábu Rájendralál Mittra observed that from a cursory inspection of these MSS. he believed them to be very rare and of considerable value.

The following gentlemen, duly proposed and seconded at the last meeting, were ballotted for and elected ordinary members.

Lieut. R. De Bourbel, Engineers.

Dr. Mouat, and

Lieut. Chancey, Madras Army.

Captain H. Yule, Engineers, was proposed for election by Lieut.-Col. W. E. Baker, seconded by Professor Oldham.

The Council submitted a report recommending that the Rev. J. Porter, of Damascus; Monsieur A. Von Kremer, of Alexandria; Dr. E. Smith, of Beyrout; J. Taylor, Esq., of Bussorah; M. M. H. and A. Schlagintweit, and Dr. Wilson, of Bombay, be elected corresponding members of the Society.

The election of Bábu Rájendralál Mittra as a member of the Council, reported at the last meeting, was confirmed under bye law 60.

Pursuant to notice given at the last meeting, Captain Thuillier moved "that a proposition be submitted to the Society at large, that the subscriptions of members of the Society be reduced from sixteen to ten Rs. per quarter."

Professor Oldham proposed the following amendment, "that it being the opinion of the present meeting, that the subscription of the members should be reduced, they request that the votes of the

non-Resident members may be collected on the proposition, and a special meeting summoned for its decision."

The amendment was put to the vote and lost.

A second amendment was proposed by Mr. Beaufort, "that the reduction be made experimentally for one year, and in regard to new members only, with a view to ascertain in what degree such reduction will attract members to the Society."

This amendment was also negatived.

The original motion, seconded by Lieutenant-Colonel Baker, was then put to the vote and carried.

Mr. R. Hamilton then moved, seconded by Mr. Atkinson, "that the second Wednesday in September be fixed for a special general meeting, for the purpose of finally deciding the question and be duly advertised accordingly."

Carried.

Communications were received—

1.—From Sir Proby T. Cautley, offering thanks for his election as an Honorary Member of the Society.

2.—From Bábu Rádá Náth Sikdár, forwarding copy of a Meteorological Register kept at the Surveyor General's Office, Calcutta, for the month of March last.

3.—From Mr. Assistant Secretary Oldfield, enclosing copy of a Meteorological Register kept at the office of the Secretary to the Government of the N. W. P., Agra, for the month of April last.

4.—From Lieut. R. Stewart, submitting a sketch of the Kooki Grammar and a Meteorological Register kept at Apaloo for the month of November last.

5.—From W. Grey, Esq., Secretary to the Government of Bengal, enclosing correspondence relating to the existence of iron ores in the Carribari Hills and at Dhubri in Assam.

The substance of this correspondence was contained in a letter read at the last meeting. The specimens forwarded to the Government were submitted to Dr. M. C. Macnamara for examination.

His report is as follows:—

"The iron is chiefly combined in the ore with sulphur, but some oxide of iron is also present. The quantities of metallic iron amount to only 17.3 per cent.

"The copper is also partly present as a sulphuret, partly as oxide? The proportion of metallic copper amounts to 70 per cent."

The Curator of the Museum of Economic Geology read a report.

The Librarian submitted his usual monthly report.

Mr. Oldham at the request of the President, described in detail the Geological structure of the Talcheer Coal field, in the tributary mchals of Cuttack, which had been examined during the past season by Messrs. Blanford and Theobald attached to the Geological Survey, illustrating his remarks by maps and sections of the field. The full details will shortly be published.

On the motion of the Chairman, the best thanks of the Society were voted to Mr. Oldham for his very interesting information.

*Report of the Curator, Museum of Economic Geology.*

*Geological and Mineralogical.*—We some time ago received from Captain Blagrave, a collection of rocks and minerals from the hills of Shahkol, Sanglee and Chemot (?) in Jhung, but I was, and have been since, prevented from taking them up by other researches then on hand. This I hope to do forthwith, but I mention them here that the donation may be on record, which it should have been earlier had I not proposed first to examine them before mentioning them and then passed them over for more urgent matters.

In the Rev. Mr. Hislop's collection from Nagpore, I have found a very fine specimen of the scarce mineral Condroidite, which is upon the table, as well as the museum specimen of it from New Jersey, U. S.

From Dr. Spilsbury we have received a specimen of Schorl in quartz from Choor Serai, North of Nagpore.

I have had to revise my second paper on the silt of the Hooghly announced at a former meeting, and in consequence of the farther views to which I have been led, to repeat several of the examinations, and to add some new ones, which has delayed it greatly: I now present it complete for the Journal.

*Economic Geology.*—We have received a series of copper ores from Dr. Campbell of Darjiling, who was in hopes that he had found blue copper (the azurite or blue carbonate of copper) amongst them, but this was merely a deceptive appearance, and the ores are the same unpromising sulphurets as before, in a very tough rock, and apparently not found in large masses. However this is but the surface indication, the produce of a shaft or gallery may be something widely differing.

I have been occupied for a considerable time since my last report with analyses of iron ores for Col. Drummond, of which the following are the tabulated results:—

|                                | Water and Car-<br>bonic Acid. | Earthy matters. | Arsenic. | Carbonate lime. | Magnesia | Iron peroxide. | Loss or excess. | Contains metal-<br>lic iron. |
|--------------------------------|-------------------------------|-----------------|----------|-----------------|----------|----------------|-----------------|------------------------------|
| No. 1. D-chourie, . . .        | 1.56                          | 19.10           | 5.70     | 0.50            | ..       | 68.65          | 4.49*           | 47.60                        |
| No. 2. Dechourie, . . .        | 2.00                          | 22.40           | 0.91     | 2.60            | ..       | 73.50*         | 1.41            | 50.96                        |
| No. 3. Loha Bhurbur, . .       | 2.50                          | 20.00           | 7.91     | 1.90            | ..       | 75.05†         | 7.36†           | 52.00                        |
| W. . . . .                     | 2.75                          | 43.75           | 3.90     | 2.43            | ..       | 42.02          | 0.15            | 29.13                        |
| No. 4. Loha Bhurbur, C. A. . . | 5.00                          |                 |          |                 |          |                |                 |                              |
| Native iron-slugs, . .         | ..                            | 40.25           | 3.65     | ..              | ..       | 60.13‡         | 4.03‡           | 46.42                        |
| No. 5. Turwagar, { W. . . . .  | 5.40                          | 44.40           | ..       | 12.00           | ..       | 27.60          | 6.15§           |                              |
|                                | C.A. 4.35                     |                 |          |                 |          |                |                 |                              |

\* Excess from peroxidation.

† In No. 3 much specular iron and peroxidation of protoxide.

‡ Loss from water of combination with the earthy matters and ore.

§ Some excess from peroxidation.

We have received from Mr. Hodgson of Darjiling two bottles of water from the Minchu spring, near that station, and from A. Grote, Esq. C. S. some small bottles of mineral water from Sosoneah, North of Hazareebagh, and also a larger quantity of a mineral water from Kudjoral in Jessore. Of these three waters I have completed a preliminary examination which will form a paper for the Journal.

From Mr. Cowan of the Gas Light works, who called for some information about a yellow earth, of which a quantity was procured in the bazar, and which they find useful to mix with the English fire-clay for their retort furnaces, I have obtained a specimen of the Boghead Cannel coal of Linlithgowshire, which is a great acquisition to the coal collections. In sending it, that gentleman writes:—

“I have left you as promised a sample of the Boghead Cannel coal found in Linlithgowshire. I have now had a fair trial of the Bengal coal for gas-making and find it very good indeed.”

I have received from Major Ramsay a specimen of a supposed coal shale from the Nepal Terraie, close to the plains, at a place called Hetounda, where the mineral, it is said, abounds. It was discovered by a brother of H. H. Jung Bahadoor, and the minister was desirous of having an opinion upon it.



Though a surface specimen, and a good deal mixed with a promising kind of sandstone in layers and nests, it proves to be a very fine bituminous Lignite, giving on analysis —

|                       |       |
|-----------------------|-------|
| Gaseous matter, ..... | 35.50 |
| Carbon, .....         | 50.25 |
| Ash (reddish), .....  | 14.25 |

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100.00

which are nearly the average constituents of the common Burdwan coal, so that it is thus a very good fuel; and if good workable beds or veins of it are found, and water carriage is within reach, no doubt it may prove highly advantageous to the river steamers at Dinapore and higher up.

Babu Rammanath Bannerjee has handed to me a specimen of coal and four of sandstones. The coal is found very near to the surface, at Darjeeka, seven miles to the N. West of Ranneegunge. It is of an excellent quality being quite equal to the average of the good Ranneegunge and Chinakuri sorts.

|                                |       |
|--------------------------------|-------|
| Its specific gravity is, ..... | 1.32  |
| Its contents in 100 parts are, |       |
| Water, .....                   | 2.90  |
| Gaseous matter, .....          | 31.85 |
| Carbon, .....                  | 54.85 |
| Ash, .....                     | 10.10 |

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100.00

Of the four sandstones three are quite worthless, but the fourth is a tough compact brown sandstone with a calcareous cement, splitting in layers thin enough to be used for roofing, like slates.

To Dr. Spilsbury we are indebted for the following valuable specimens:

Hematite iron ore with manganese from Ponhoga, near Jubbulpore.

Manganese ore from Ramtek Nagpore.

Quartz rock with gold from Australia.

Massive gold from Australia.

Gold in ferruginous clay from Frederick's valley near Summerhill, Australia.

Massive gold with matrix from California.

From Captain Saxton of the Cuttack Survey we have received a specimen of the washed sand from the gold washings of the Bráhminee and some of the gold sand. I do not find the washed sand to contain any thing worth notice, and the auriferous sand is in too small a quantity to afford a portion for analysis.

Dr. McGowan of Ningpo has sent us from that country, with some other specimens, which I shall advert to in a future report, a small bit of alum stone from the Sung-Yang hills bordering on Foh Kien, together with a newspaper extract describing some of the uses of alum in China, and the works from whence this his specimen is obtained. The extract is as follows:—

“*Alum.*—About eleven hundred tons of Alum have been exported within a short period, chiefly to India. This mineral is largely employed by the Chinese in dying, and to some extent in paper-making as with us. Surgeons apply it variously after depriving it of its water of crystallization, and in domestic life it is used for precipitating vegetable substances suspended in potable water. It is used also by the Chinese in a manner peculiar to themselves. Fishermen are usually provided with it, and when they take one of those huge *Rhizostoma* which abound on the coast they rub the animal with the pulverized styptic to give a degree of coherence to the gelatinous mass. Architects employ it as a cement in those airy bridges which span the water-courses. It is poured in a molten state into the interstices of stones, and in structures not exposed to constant moisture the cohesion is perfect, but in damp situations it becomes a hydrate and crumbles, a fact of which the whole empire was officially informed by the government about thirty years ago. It was discovered that water had percolated into the mausoleum of Kiaking, having been built too near to the mountain side, the alum cement imbibed moisture, segregated and opened the way for to enter the tomb? In those peaceful days such an event was of such importance as to call forth edicts and rescripts, memorials and reports in succession for several months. The son-in-law of the deceased monarch to whose care the construction of the edifice had been entrusted was fined and degraded, and a statesman from Fohkien acquainted with the properties of alum was appointed to remove it a short distance from the mountain.

“Alum was first introduced into China from the West, and until a comparatively recent period the best kind called sometimes Persian, and at others Roman Alum was brought from Western Asia. Numerous localities where an inferior article is manufactured are mentioned in the *Pharmacopœa*—viz., Shan-tung, Shan-se, Kiang-su, Hukwang, Sz'-chuen, also in the South-western frontier and in Tibet. That from Sz'-chuen is represented as having the property of converting iron into copper or of coating iron with copper, by placing the former metal in a solution of rice-liquor and alum, the stone of that province. The most recent editions of works on materia medica contain no reference to the mines in this province, the products of which have surpassed in quality the foreign, and rendered

its importation unnecessary. From this and from other circumstances it is certain that the works which we shall now describe have not been long in operation. They are in the Sung-yang hills bordering on Foh-kien in the district of Ping-yang, Wan-chau prefecture, and in close proximity to Peh-kwan harbor ( $27^{\circ} 9' 10''$  N.,  $120^{\circ} 32' 6''$  E.)

"The locality has been visited by one foreigner only, to whom we are indebted for most of the following particulars. About two months ago he started from Chih-k'i bight in Lannai harbor to which Ningpo boats resort for this commodity to the Northward of Peh-kwan. Three hours' hard walking over a succession of precipitous hills crossed by stone steps and pathways brought him to the mines. Ten Alum-making establishments were in operation, which, with the exception of one on a hill opposite, occupied about a mile of the side of a lofty hill. The works were adjacent to the quarries from which the Alum-stone seemed to crop out of decomposed rock of the same lithological character. The stones were thrown into a fire of brushwood where they burnt with a slight lambent flame and as they cracked, the fragments were raked out broken into small pieces, and macerated in vats. Subsequently the disintegrated mineral was thrown with water into a vessel having an iron bottom and sides of wood and boiled for a short time. The lixivium was then poured into large reservoirs where it crystallized into a solid mass. Blocks of alum weighing about fifty catties each were hewn out of the reservoir and carried in this state in bamboo frames, one on each end of a porter's pole to the place of shipment, where it is broken into fragments. When not designed for immediate exportation, the blocks are stored away for drying. On reaching the depôt the alum is found charged with a double quantity of moisture, the porters being obliged to deliver a certain weight, they slip their burdens in the mountain streams which they pass in the journey. Judging from the number of labourers engaged in transporting the mineral on the day of our informant's visit, the quantity brought from the works could not be less than eighteen tons. This was represented as less than an average day's work, as labour was in such demand just then for agricultural purposes that double pay was given;—and aged men, and women, with boys and girls were pressed into the service. Assuming that day's product as a basis for calculation and making an allowance for rainy days, we may safely estimate the annual supply as between five and six thousand tons. The quantity consumed by the dyers of Ningpo prefecture alone, being nearly twenty-two tons per annum, is corroborative of this estimate. The supply is literally inexhaustible. Five dollars-and-a-quarter a ton at the landing would afford the manu-

facturer a fair profit. It often fetches much more, as there has been an increasing demand for the article owing to the greater facilities afforded for exportation from Ningpo in foreign vessels.

"The Wan-chau Alum is equal to the best Roman,—a roseate tint in some specimens indicates the presence of minute quantities of iron.

"We have no means of ascertaining the precise geological position of the rock from which this alum is procured; some circumstances seem to indicate it to be a new mineral. It is stated that no potash nor any other material is employed in the works. Granitic and porphyritic rocks abound in the vicinity, and some parts of the district produce iron and silver. According to the Wan-chau Topography, the working of silver was discontinued in the reign of Wan-lih (1615) in consequence of imperial prohibition. This part of the coast has recently become the seat of extensive poppy cultivation for the bane of the Chinese race.

"As a contribution to the physical description of the alum district, we would add that the typhoon of September last was preceded by a rising of water in wells and ponds many miles inland. When the cyclone reached the coast it submerged about a hundred square miles, occasioning a vast destruction of life and property. The waters of the sea were retained in the country by strong Easterly winds for several days leaving a strip of land bordering on the sea quite dry."—*North China Herald*, 23rd January, 1856."

The rock, for it is one, and not a mineral, is a grey felspar porphyry with minute brilliant white specks, which may be arsenical pyrites, silvery mica or sulphuret of Nickel, but I was unable to sacrifice enough of the rock to ascertain what it was. When polished it shews a very pretty surface, and a small portion pulverised and calcined and then boiled gave sulphuric acid and alumina to the usual tests, so that it is probably an alum porphyry, i. e. a porphyry containing Alunite.

H. PIDDINGTON.

#### LIBRARY.

The Library has received the following accessions during the month of May last.

#### *Presented.*

Oeuvres Complètes De N. H. Abel, Mathématicien, Avec des Notes et Développemens, Rédigés par ordre du Roi par B. Holmboe, *Christiania*, 1839, 2 vols. bound in one, 4to.—BY THE ROYAL UNIVERSITY OF CHRISTIANIA, NORWAY.

Recherches Cliniques sur La Syphilisation, par Dr. Wilhelm Boeck, pamphlet.—BY THE SAME.

Christian Den Fjerdes Norske Lovbog af. 1604, Efter Foranstaltning af.

det Akademiske Kollegium ved det Kongelige Norske Frederiks Universitet af. Fr. Hallager og Fr. Brandt. 1855, 8vo.—BY THE SAME.

Universitatis Regiæ Fredericianæ, Novæ Ædes.—BY THE SAME.

Beretning om Bødsfængslets Perklomhed.—BY THE SAME.

Om Dodeligheden i Rorge Bidrag til Kundskab om Folkets Karr af. Gilbert Sundt, Christiania, 1855, 12mo.—BY THE SAME.

Midlertidigt Reglement for Gaustad Sindssyge Asyl. 1855, 8vo.—BY THE SAME.

Det Kongelige Rorste Frederits Universitets, Aarsberetning for 1853, pamphlet.—BY THE SAME.

Das Christiania-Silurbecken, Chemisch-geognostisch. untersucht, von. Theodor Kjerulf, 1855, qto. pamphlet.—BY THE SAME.

De prisca re monetaria Norvegiæ et de Numis Aliquot et ornamentis, in Norvegia Repertis, by C. A. Holmboe, *Christiana*, 1854, 8vo. pamphlet.—BY THE SAME.

Nyt Magazin for Naturvidenskaberne, udgives af. den physiographiske Forening i Christiania ved Chr. Langberg, 1854. vol. VIII. Parts 3 and 4, 8vo.—BY THE SAME.

Recueil d' Observations sur les Maladies de la Peau par W. Böeck et D. C. Danielssen, *Christiana*, 1855.—BY THE SAME.

Catalogue of the Birds in the Museum of the East India Company, Vol. I. 8vo.—BY THE HON'BLE COURT OF DIRECTORS.

Appendix to the Report on the Government Central Museum of Madras.—BY THE GOVERNMENT OF BENGAL.

Report of the Director of the Public Instruction on the Lower Provinces for 2nd and 3rd quarter of 1855-56, i. e. from Nov. 1855 to 31st Jan. 1856, 2 copies, pamphlets.—BY GORDON YOUNG, ESQ. DIRECTOR OF PUBLIC INSTRUCTION.

The Qorän ; with the Commentary of the Imam Aboo Al-qasim Mahmood Bin 'Omar Al-zamakhshari, entitled "The Kashshaf'an Haqaiq Al-tanzil," 4to. Calcutta, 1856 —BY LIEUT. W. N. LEES.

Selections from the Records of the Government of India, No. XI.—BY THE GOVERNMENT OF INDIA.

Bydhorbo Dhurmoodhoy, pamphlet, 8vo.—BY BABU RA'MA'NA'TH GOSWAIN.

The Oriental Baptist for May, 1856.—BY THE EDITOR.

The Calcutta Christian Observer for May, 1856.—BY THE EDITORS.

Upadeshak for May, 1856,—BY THE EDITOR.

The Indian Annals of Medical Science, No. VI. April, 1856. 8vo.

*Exchanged.*

The Calcutta Review, No. LI. for March, 1856.

June 1st, 1856.

GOUR DOSS BYSA'CK, *Asst. Secy. and Librn.*

## FOR JULY, 1856.

At a monthly general Meeting of the Society held on the 2d instant, at the usual hour.

Dr. G. G. Spilsbury, Vice-President in the Chair.

The proceedings of the last meeting were read and confirmed.

*Presentations were received—*

From Colonel G. B. Tremenheere through Messrs. Allen, Deffell and Co., a box of minerals and specimens illustrating the different stages of metallurgical processes, particularly of the manufacture of Iron, for the department of Economic Geology.

2.—From Mr. H. Piddington, a silver coin obtained from Mr. Downward at Sreecond.

Bábu Rájendra Kál Mittra stated the coin was a good specimen of a well known type. It belonged to the reign of Jeenu, who obtained the sovereignty of Bengal in the year of Hejira 795, and died in 812. It bore no date, but the title of the king—Mahammad Shah, which he assumed on his conversion to Islam—was perfectly distinct. The weight of the coin was 163 grains, and its diameter 12-10ths. The barred lines both on the obverse and the reverse were alike, and included the Mahammedan creed "*La Ilaha illil La, &c.*"

3.—From the Bavarian Academy of sciences, the latest publications of the Academy.

4.—From Dr. Cheek of Benares through Mr. Blyth, a Santal sword, battle-axe, and bow and arrows.

5.—From Mr. C. Hollings, Gya, through Mr. Grote, the skeleton of a Dingo—the so-called wild dog of Australia.

6.—From Mr. Grote, C. S. the superb Meteorite from Soogoulee which was exhibited at the meeting in February last by that gentleman.

Captain H. Yule, Engrs., proposed and seconded at the last meeting was balloted for and elected a member.

On the recommendation of the Council the following gentlemen proposed at the last meeting were balloted for and elected corresponding members of the Society:—Rev. J. Porter of Damascus, Mons. A. Von Kremer, of Alexandria, Dr. E. Smith of Beyrout,

Mons. H. Schlagintweit, Mons. A. Schlagintweit, Dr. Wilson of Bombay and J. Taylor, Esq., of Bussorah.

The following gentlemen were named for ballot at the next meeting :—

A. Roberts, Esq., C. S. and

Major W. C. Erskine, proposed by Mr. J. G. Meddlecott and seconded by Mr. T. Oldham.

Raja Suttoshurn Ghosal Bahadoor, proposed by Bábu RámGOPaul Ghose and seconded by Dr. Spilsbury.

*Communications were received—*

1.—From the Governor General in Council, through G. F. Edmonstone, Esq., Secretary to the Government of India, a narrative of the Travels in Central Asia of Syud Khwajah Ahmud who was despatched by the late Colonel Mackeson in October, 1852, in search of Lieutenant Wyburd.

Dr. Thompson read portions of the narrative, and remarked that this paper having been made over to him for report, he had much pleasure in directing attention to the many points of interest which it presented. The traveller had passed through those unknown districts of Central Asia to which the eyes of Geographers are turned with great interest, but from which Europeans are excluded by the jealous policy of the Chinese. Leaving Le in the winter of 1852-3 he proceeded to Yarkund, sent one of his party to Khoten and Aksoo, and proceeded himself to Kashgur and thence to Kokan, Samarkund and Bokhara, from which place he returned viâ Cabul to Peshawur without having obtained other than negative information regarding the object of his mission.

He gives many interesting details regarding Khoten, Aksoo, Yarkund and Kashgur, the general aspect of the country and the population and the nature of the authority exercised by the Chinese.

Dr. Thompson further remarked that the publication of the present report would doubtless direct the attention of Geographers to this interesting journey, so as to obtain from the traveller information regarding many points of great geographical interest which are not alluded to in it, but with which he must be well acquainted.

2.—From Bábu Rádhá Náth Sikdár, forwarding copy of a Meteor-

ological register kept at the Surveyor General's Office, Calcutta, for the month of April last.

3.—From Mr. E. A. Samuells B. C. S. notes on a Forest race, called Pattooa or Juanger, inhabiting certain of the tributary Mehals of Cuttack.

The Librarian submitted his usual monthly report.

#### LIBRARY.

The Library has received the following additions during the month of June.

#### *Presented.*

Abhandlungen der Mathemath-Physikalischen Classe der koeniglich Bayerischen Akademie der Wissenschaften, *München*, 1851, 4to. 6th vol. 2nd and 3rd parts, and 7th vol. part I.—BY THE ACADEMY.

—— der Philosoph-Philologischen Classe der königlich Bayerischen Akademie der Wissenschaften, *München*, 1853, 4to. 6th vol. parts 3rd and 7th vol. part I.—BY THE SAME.

—— der Historischen Classe der ditto ditto, 1852, 4to. 6th vol. part 3rd.—BY THE SAME.

Architektonische Zeichnungen als Beilage zu den zwei Abhandlungen über das Erechtneum in B. V. 3 u. VI. I. der Abh. der I Classe d. k. b. Ak. d. Wiss. von E. Mezger, 4to.—BY THE SAME.

Gelehrte Anzeigen, *München*, vols. 33, 34 and 35, July to December, 1851, and Jany. to Decr. 1852.—BY THE SAME. •

Afrika vor den Entdeckungen der Portugiesen von F. Kunstmann, *München*, 1853.—BY THE SAME.

Bulletin of the Royal Academy of Sciences, *München*, Nos. 34 to 43 for 1851—Nos. 1 to 29 for 1852 and Nos. 1 to 25 for 1853.—BY THE SAME.

Zeitschrift der Deutschen morgenländischen Gesellschaft, zehnter Band I. und II. heft, 8vo. Leipzig, 1856.

Ueber den Chemismus der Vegetation, von Dr. A. Vogel, Jr. *München*, 1852, pamphlet, 4to.—BY THE SAME.

Verzeichniss von Abhandlungen und Selbständigen Schriften aus dem Gebiete der Sprachforschung, erschienen in Ferd. D. Verlagsbuchhandlung, Jany. 1856.—BY THE SAME.

Die Gegenwartige Aufgabe der Philosophie, Von Dr. Prantl, 1852, pamphlet.—BY THE SAME.

Natuurkundig Tijdschrift voor Nederlandsch Indie, Deel X. 8vo. Batavia.—BY THE EDITORS.

Reports of the Juries of the Madras Exhibition, 1855, pamphlet.—BY THE GOVERNMENT OF BENGAL.



General Report on Public Instruction in the Lower Provinces of the Bengal Presidency from 27th January to 3rd April, 1855.—BY THE SAME.

Report of the Administration of the Salt Department of the Revenue of Bengal, for the year 1854-55.—BY THE SAME.

Selections from the Records of Government, N. W. P. Part XXV. 1856.—BY THE AGRA GOVERNMENT.

Half-yearly Report of the Committee of the Bengal Chamber of Commerce, 1st May, 1856.—BY THE CHAMBER OF COMMERCE.

The Oriental Christian Spectator for May, 1856.—BY THE EDITOR.

The Oriental Baptist for June, 1856.—BY THE EDITOR.

The Calcutta Christian Observer for June, 1856.—BY THE EDITORS.

Upadeshak for June, 1856.—BY THE EDITORS.

Tuttwabodhini Patrika.—BY THE TUTTWABODHINI SOBHA'.

The Citizen Newspaper.—BY THE EDITOR.

The Durbin ditto.—BY THE SAME.

*Exchanged.*

The Calcutta Review, No. LII. for June, 1856.

The Athenæum for March, 1855.

The London, Edinburgh, and Dublin Philosophical Magazine and Journal of Science, No. 72, for April, 1856.

The Journal of Indian Archipelago and Eastern Asia, from April to September, 1855, Vol. IX. Nos. 4 to 9, 2 copies.

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*Purchased.*

The American Journal of Science and Arts, No. 62, March, 1856.

Comptes Rendus, Nos. 10 and 11, for 10th and 17th March, 1856.

The Westminster Review, No. XVIII. April, 1856.

Revue des Deux Mondes, 1st April, 1856.

Annales des Sciences Naturelles, No. 3, Tome IV.

Journal des Savants, for March, 1856.

Revue et Magasin de Zoologie, No. 2, of 1856.



*Meteorological Observations.*

lvii

*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of January, 1856.*

Latitude 22° 33' 1" North. Longitude 88° 20' 34" East.

Height of the Cistern of the Standard Barometer above the level of the Sea, <sup>Feet</sup> 18.11

Daily Means, &c. of the Observations and of the Hygrometrical elements  
dependent thereon.

| Date. | Mean Height of<br>the Barometer<br>at 32° Fahr. | Range of the Barometer<br>during the day. |         |         | Mean Dry Bulb<br>Thermometer. | Range of the Tempera-<br>ture during the day. |      |       |
|-------|-------------------------------------------------|-------------------------------------------|---------|---------|-------------------------------|-----------------------------------------------|------|-------|
|       |                                                 | Max.                                      | Min.    | Diff.   |                               | Max.                                          | Min. | Diff. |
|       | Inches.                                         | Inches.                                   | Inches. | Inches. | o                             | o                                             | o    | o     |
| 1     | New year's day.                                 |                                           |         |         |                               |                                               |      |       |
| 2     | 30.038                                          | 30.129                                    | 29.973  | 0.156   | 64.1                          | 75.6                                          | 55.6 | 20.0  |
| 3     | .048                                            | .133                                      | 30.003  | .130    | 63.7                          | 74.4                                          | 55.0 | 19.4  |
| 4     | .062                                            | .154                                      | .011    | .143    | 64.9                          | 77.0                                          | 55.2 | 21.8  |
| 5     | .007                                            | .087                                      | 29.940  | .147    | 67.3                          | 78.0                                          | 60.5 | 17.5  |
| 6     | Sunday.                                         |                                           |         |         |                               |                                               |      |       |
| 7     | .051                                            | .125                                      | 30.012  | .113    | 70.7                          | 80.0                                          | 64.0 | 16.0  |
| 8     | .106                                            | .189                                      | .041    | .148    | 66.8                          | 75.5                                          | 59.6 | 15.9  |
| 9     | .151                                            | .239                                      | .109    | .130    | 64.4                          | 74.4                                          | 55.6 | 18.8  |
| 10    | .154                                            | .243                                      | .080    | .163    | 65.5                          | 75.8                                          | 57.4 | 18.4  |
| 11    | .119                                            | .204                                      | .070    | .134    | 66.2                          | 74.4                                          | 58.6 | 15.8  |
| 12    | .074                                            | .161                                      | .020    | .141    | 66.7                          | 76.2                                          | 60.4 | 15.8  |
| 13    | Sunday.                                         |                                           |         |         |                               |                                               |      |       |
| 14    | .060                                            | .149                                      | .001    | .148    | 70.5                          | 80.6                                          | 62.6 | 18.0  |
| 15    | .058                                            | .141                                      | 29.994  | .147    | 70.8                          | 81.9                                          | 61.0 | 20.9  |
| 16    | .092                                            | .166                                      | 30.033  | .133    | 71.2                          | 79.8                                          | 66.0 | 13.8  |
| 17    | .085                                            | .167                                      | .012    | .155    | 69.1                          | 77.8                                          | 62.4 | 15.4  |
| 18    | .083                                            | .172                                      | .020    | .152    | 67.8                          | 78.3                                          | 58.2 | 20.1  |
| 19    | .084                                            | .148                                      | .017    | .131    | 69.5                          | 79.5                                          | 60.6 | 18.9  |
| 20    | Sunday.                                         |                                           |         |         |                               |                                               |      |       |
| 21    | .103                                            | .194                                      | .042    | .152    | 70.8                          | 80.2                                          | 63.9 | 16.3  |
| 22    | 29.999                                          | .071                                      | 29.921  | .150    | 71.5                          | 82.1                                          | 63.2 | 18.9  |
| 23    | .984                                            | .083                                      | .934    | .149    | 71.7                          | 81.0                                          | 66.8 | 14.2  |
| 24    | .995                                            | .071                                      | .952    | .119    | 69.0                          | 79.0                                          | 61.1 | 17.9  |
| 25    | 30.031                                          | .121                                      | .978    | .143    | 70.5                          | 81.2                                          | 62.6 | 18.6  |
| 26    | 29.954                                          | .044                                      | .877    | .167    | 71.8                          | 82.2                                          | 62.2 | 20.0  |
| 27    | Sunday.                                         |                                           |         |         |                               |                                               |      |       |
| 28    | .988                                            | .075                                      | .919    | .156    | 74.1                          | 82.0                                          | 68.0 | 14.0  |
| 29    | 30.035                                          | .126                                      | .965    | .161    | 70.8                          | 79.2                                          | 64.8 | 14.4  |
| 30    | 29.992                                          | .077                                      | .898    | .179    | 68.8                          | 80.3                                          | 63.2 | 17.1  |
| 31    | .918                                            | 29.981                                    | .867    | .114    | 66.1                          | 71.7                                          | 62.8 | 8.9   |

*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of January, 1856.*

Daily Means, &c. of the Observations and of the Hygrometrical elements  
dependent thereon. (Continued.)

| Date. | Mean Wet Bulb Thermometer. | Dry Bulb above Wet. | Computed Dew Point. | Dry Bulb above Dew Point. | Mean Elastic force of Vapour. | Mean Weight of Vapour in a Cubic foot of Air. | Additional weight of vapour required for complete saturation. | Mean degree of Humidity complete saturation being unity. |
|-------|----------------------------|---------------------|---------------------|---------------------------|-------------------------------|-----------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------|
|       | o                          | o                   | o                   | o                         | Inches.                       | T. gr.                                        | T. gr.                                                        |                                                          |
| 1     | New year's day.            |                     |                     |                           |                               |                                               |                                                               |                                                          |
| 2     | 58.2                       | 5.9                 | 54.1                | 10.0                      | 0.429                         | 4.78                                          | 1.89                                                          | 0.72                                                     |
| 3     | 57.8                       | 5.9                 | 53.7                | 10.0                      | .423                          | .72                                           | .87                                                           | .72                                                      |
| 4     | 58.8                       | 6.1                 | 55.1                | 9.8                       | .444                          | .94                                           | .91                                                           | .72                                                      |
| 5     | 62.5                       | 4.8                 | 59.6                | 7.7                       | .516                          | 5.71                                          | .66                                                           | .78                                                      |
| 6     | Sunday.                    |                     |                     |                           |                               |                                               |                                                               |                                                          |
| 7     | 65.0                       | 5.7                 | 62.1                | 8.6                       | .561                          | 6.16                                          | 2.02                                                          | .75                                                      |
| 8     | 59.4                       | 7.4                 | 55.0                | 11.8                      | .442                          | 4.90                                          | .36                                                           | .68                                                      |
| 9     | 57.0                       | 7.4                 | 51.8                | 12.6                      | .397                          | .41                                           | .33                                                           | .65                                                      |
| 10    | 59.8                       | 5.7                 | 56.4                | 9.1                       | .464                          | 5.15                                          | 1.83                                                          | .74                                                      |
| 11    | 61.3                       | 4.9                 | 58.4                | 7.8                       | .496                          | .49                                           | .63                                                           | .77                                                      |
| 12    | 61.1                       | 5.6                 | 57.7                | 9.0                       | .485                          | .36                                           | .87                                                           | .74                                                      |
| 13    | Sunday.                    |                     |                     |                           |                               |                                               |                                                               |                                                          |
| 14    | 64.6                       | 5.9                 | 61.6                | 8.9                       | .552                          | 6.06                                          | 2.07                                                          | .75                                                      |
| 15    | 65.0                       | 5.8                 | 62.1                | 8.7                       | .561                          | .10                                           | .04                                                           | .75                                                      |
| 16    | 68.2                       | 3.0                 | 66.7                | 4.5                       | .653                          | 7.16                                          | 1.14                                                          | .86                                                      |
| 17    | 61.9                       | 7.2                 | 58.3                | 10.8                      | .494                          | 5.44                                          | 2.34                                                          | .70                                                      |
| 18    | 60.8                       | 7.0                 | 56.6                | 11.2                      | .467                          | .16                                           | .32                                                           | .69                                                      |
| 19    | 64.2                       | 5.3                 | 61.5                | 8.0                       | .550                          | 6.06                                          | 1.82                                                          | .77                                                      |
| 20    | Sunday.                    |                     |                     |                           |                               |                                               |                                                               |                                                          |
| 21    | 66.6                       | 4.2                 | 64.5                | 6.3                       | .607                          | .68                                           | .52                                                           | .82                                                      |
| 22    | 65.8                       | 5.7                 | 62.9                | 8.6                       | .576                          | .31                                           | 2.07                                                          | .75                                                      |
| 23    | 66.0                       | 5.7                 | 63.1                | 8.6                       | .580                          | .35                                           | .08                                                           | .75                                                      |
| 24    | 61.7                       | 7.3                 | 58.0                | 11.0                      | .489                          | 5.39                                          | .37                                                           | .70                                                      |
| 25    | 64.1                       | 6.4                 | 60.9                | 9.6                       | .539                          | .92                                           | .21                                                           | .73                                                      |
| 26    | 66.0                       | 5.8                 | 63.1                | 8.7                       | .580                          | 6.35                                          | .10                                                           | .75                                                      |
| 27    | Sunday.                    |                     |                     |                           |                               |                                               |                                                               |                                                          |
| 28    | 68.8                       | 5.3                 | 66.1                | 8.0                       | .640                          | .99                                           | .08                                                           | .77                                                      |
| 29    | 65.5                       | 5.3                 | 62.8                | 8.0                       | .574                          | .31                                           | 1.89                                                          | .77                                                      |
| 30    | 65.0                       | 3.8                 | 63.1                | 5.7                       | .580                          | .39                                           | .32                                                           | .83                                                      |
| 31    | 63.9                       | 2.2                 | 62.6                | 3.5                       | .570                          | .32                                           | 0.78                                                          | .89                                                      |

*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of January, 1856.*

Hourly Means, &c. of the Observations and of the Hygrometrical elements  
dependent thereon. (Continued.)

| Hour.      | Mean Height of the Barometer at 32° Fah. | Range of the Barometer for each hour during the month. |         |         | Mean Dry Bulb Thermometer. | Range of the Temperature for each hour during the month. |      |       |
|------------|------------------------------------------|--------------------------------------------------------|---------|---------|----------------------------|----------------------------------------------------------|------|-------|
|            |                                          | Max.                                                   | Min.    | Diff.   |                            | Max.                                                     | Min. | Diff. |
|            | Inches.                                  | Inches.                                                | Inches. | Inches. | °                          | °                                                        | °    | °     |
| Mid-night. | 30.053                                   | 30.179                                                 | 29.944  | 0.235   | 65.2                       | 74.0                                                     | 59.2 | 14.8  |
| 1          | .048                                     | .169                                                   | .962    | .207    | 64.6                       | 73.6                                                     | 58.4 | 15.2  |
| 2          | .038                                     | .164                                                   | .910    | .254    | 63.9                       | 73.4                                                     | 57.4 | 16.0  |
| 3          | .030                                     | .154                                                   | .924    | .230    | 63.2                       | 72.4                                                     | 57.0 | 15.4  |
| 4          | .024                                     | .150                                                   | .868    | .282    | 62.9                       | 71.8                                                     | 56.2 | 15.6  |
| 5          | .024                                     | .121                                                   | .870    | .251    | 62.5                       | 71.6                                                     | 55.5 | 16.1  |
| 6          | .044                                     | .173                                                   | .925    | .248    | 61.9                       | 69.9                                                     | 55.0 | 14.9  |
| 7          | .073                                     | .204                                                   | .911    | .293    | 61.5                       | 70.2                                                     | 55.0 | 15.2  |
| 8          | .105                                     | .223                                                   | .939    | .284    | 63.2                       | 70.5                                                     | 57.0 | 13.5  |
| 9          | .129                                     | .243                                                   | .964    | .279    | 66.9                       | 71.0                                                     | 61.3 | 9.7   |
| 10         | .128                                     | .235                                                   | .981    | .254    | 69.7                       | 73.9                                                     | 64.6 | 9.3   |
| 11         | .107                                     | .205                                                   | .972    | .233    | 72.3                       | 77.6                                                     | 66.3 | 11.3  |
| Noon.      | .075                                     | .174                                                   | .947    | .227    | 75.0                       | 79.6                                                     | 68.0 | 11.6  |
| 1          | .040                                     | .148                                                   | .909    | .239    | 76.8                       | 81.0                                                     | 69.2 | 11.8  |
| 2          | .014                                     | .129                                                   | .883    | .246    | 77.9                       | 82.0                                                     | 71.6 | 10.4  |
| 3          | .000                                     | .117                                                   | .871    | .246    | 78.2                       | 82.2                                                     | 71.7 | 10.5  |
| 4          | 29.994                                   | .109                                                   | .867    | .242    | 76.6                       | 81.0                                                     | 70.9 | 10.1  |
| 5          | .999                                     | .115                                                   | .877    | .238    | 74.5                       | 78.6                                                     | 69.2 | 9.4   |
| 6          | 30.008                                   | .111                                                   | .891    | .220    | 71.8                       | 75.6                                                     | 67.2 | 8.4   |
| 7          | .025                                     | .123                                                   | .897    | .226    | 69.9                       | 74.0                                                     | 65.0 | 9.0   |
| 8          | .043                                     | .138                                                   | .918    | .220    | 68.5                       | 72.7                                                     | 63.5 | 9.2   |
| 9          | .055                                     | .152                                                   | .924    | .228    | 67.3                       | 72.0                                                     | 62.2 | 9.8   |
| 10         | .056                                     | .160                                                   | .933    | .227    | 66.2                       | 71.6                                                     | 61.2 | 10.4  |
| 11         | .051                                     | .175                                                   | .927    | .248    | 65.5                       | 71.4                                                     | 59.0 | 12.4  |

*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of January, 1856.*

Hourly Means, &c. of the Observations and of the Hygrometrical elements  
dependent thereon. (Continued.)

| Hour.          | Mean Wet Bulb Thermo-<br>meter. | Dry Bulb above Wet | Computed Dew Point. | Dry Bulb above Dew<br>Point. | Mean Elastic force of<br>Vapour. | Mean Weight of Vapour<br>in a cubic foot of Air. | Additional weight of va-<br>pour required for com-<br>plete saturation. | Mean degree of Humidity,<br>complete saturation be-<br>ing unity. |
|----------------|---------------------------------|--------------------|---------------------|------------------------------|----------------------------------|--------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------|
|                | o                               | o                  | o                   | o                            | Inches.                          | T. gr.                                           | T. gr.                                                                  |                                                                   |
| Mid-<br>night. | 62.3                            | 2.9                | 60.6                | 4.6                          | 0.534                            | 5.92                                             | 0.99                                                                    | 0.86                                                              |
| 1              | 61.8                            | 2.8                | 60.1                | 4.5                          | .525                             | .83                                              | .95                                                                     | .86                                                               |
| 2              | 61.3                            | 2.6                | 59.5                | 4.4                          | .515                             | .73                                              | .90                                                                     | .86                                                               |
| 3              | 60.7                            | 2.5                | 58.9                | 4.3                          | .504                             | .62                                              | .87                                                                     | .87                                                               |
| 4              | 60.4                            | 2.5                | 58.6                | 4.3                          | .499                             | .58                                              | .85                                                                     | .87                                                               |
| 5              | 60.3                            | 2.2                | 58.8                | 3.7                          | .503                             | .60                                              | .75                                                                     | .88                                                               |
| 6              | 59.7                            | 2.2                | 58.2                | 3.7                          | .493                             | .51                                              | .72                                                                     | .88                                                               |
| 7              | 59.3                            | 2.2                | 57.8                | 3.7                          | .486                             | .44                                              | .72                                                                     | .88                                                               |
| 8              | 60.6                            | 2.6                | 58.8                | 4.4                          | .503                             | .60                                              | .89                                                                     | .86                                                               |
| 9              | 62.4                            | 4.5                | 59.7                | 7.2                          | .518                             | .74                                              | 1.54                                                                    | .79                                                               |
| 10             | 63.9                            | 5.8                | 61.0                | 8.7                          | .541                             | .95                                              | .98                                                                     | .75                                                               |
| 11             | 64.8                            | 7.5                | 61.0                | 11.3                         | .541                             | .93                                              | 2.65                                                                    | .69                                                               |
| Noon.          | 65.6                            | 9.4                | 60.9                | 14.1                         | .539                             | .87                                              | 3.44                                                                    | .63                                                               |
| 1              | 65.7                            | 11.1               | 60.1                | 16.7                         | .525                             | .69                                              | 4.11                                                                    | .58                                                               |
| 2              | 66.0                            | 11.9               | 60.0                | 17.9                         | .523                             | .66                                              | .50                                                                     | .56                                                               |
| 3              | 65.9                            | 12.3               | 59.7                | 18.5                         | .518                             | .60                                              | .65                                                                     | .55                                                               |
| 4              | 65.2                            | 11.4               | 59.5                | 17.1                         | .515                             | .58                                              | .19                                                                     | .57                                                               |
| 5              | 65.3                            | 9.2                | 60.7                | 13.8                         | .536                             | .83                                              | 3.35                                                                    | .64                                                               |
| 6              | 65.2                            | 6.6                | 61.9                | 9.9                          | .557                             | 6.11                                             | 2.34                                                                    | .72                                                               |
| 7              | 64.5                            | 5.4                | 61.8                | 8.1                          | .555                             | .11                                              | 1.87                                                                    | .77                                                               |
| 8              | 63.8                            | 4.7                | 61.4                | 7.1                          | .548                             | .05                                              | .60                                                                     | .79                                                               |
| 9              | 63.2                            | 4.1                | 60.7                | 6.6                          | .556                             | 5.92                                             | .45                                                                     | .80                                                               |
| 10             | 62.5                            | 3.7                | 60.3                | 5.9                          | .528                             | .86                                              | .26                                                                     | .82                                                               |
| 11             | 62.2                            | 3.3                | 60.2                | 5.3                          | .527                             | .85                                              | .13                                                                     | .84                                                               |

Meteorological Observations.

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*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of January, 1856.*

Solar radiation, Weather, &c.

| Date. | Max. Solar radiation. | Rain.  | Prevailing direction of the Wind. | General Aspect of the Sky.                                                                                       |
|-------|-----------------------|--------|-----------------------------------|------------------------------------------------------------------------------------------------------------------|
|       | o                     | Inches |                                   |                                                                                                                  |
| 1     | New year's day.       |        |                                   | [P. M.                                                                                                           |
| 2     | 133.5                 | ..     | W. or W. N. W.                    | Cloudless also foggy between 8 & 11                                                                              |
| 3     | 133.0                 | ..     | W. or N. W.                       | Cloudless. [P. M.                                                                                                |
| 4     | 133.0                 | ..     | N. or W.                          | Cloudless, also slightly foggy at 8 & 9                                                                          |
| 5     | 132.8                 | ..     | Calm or W. or N. W.               | Cloudless, also foggy before sunrise and [during the night.                                                      |
| 6     | Sunday.               |        |                                   |                                                                                                                  |
| 7     | 131.4                 | ..     | S. or S. W.                       | Scattered thin clouds till 7 A. M. cloud-                                                                        |
| 8     | 131.0                 | ..     | S. W. or W.                       | Cloudless. [less afterwards.                                                                                     |
| 9     | 129.0                 | ..     | W. or S. W.                       | Cloudless, also slightly foggy during the night.                                                                 |
| 10    | 131.0                 | ..     | W. or S. W.                       | Cloudless till 9 A. M. scattered ~ till 4 P. M. cloudless afterwards.                                            |
| 11    | 114.8                 | ..     | S. W. or W.                       | Cloudless till 6 A. M. principally scattered ~ till 6 P. M. cloudless afterwards                                 |
| 12    | 131.0                 | ..     | W. or S. W.                       | Cloudless till 11 A. M. scattered ~ till 7 P. M. cloudless afterwards, and also [slightly foggy.                 |
| 13    | Sunday.               |        |                                   |                                                                                                                  |
| 14    | 136.0                 | ..     | S. W.                             | Cloudless till 7 A. M. and foggy towards the morning, scattered ~ & ~ till 7 P. M. cloudless & foggy afterwards. |
| 15    | 138.0                 | ..     | S. W. or S.                       | Cloudless the whole day, also slightly foggy from midnight till sunrise.                                         |
| 16    | 135.0                 | ..     | S. or S. W.                       | Cloudless till 7 A. M. cloudy till Noon,                                                                         |
| 17    | 135.7                 | ..     | S. W. or W.                       | Cloudless. [cloudless afterwards.                                                                                |
| 18    | 135.0                 | ..     | S. W.                             | Ditto.                                                                                                           |
| 19    | 130.9                 | ..     | W. or S. or S. W.                 | Cloudless till 10 A. M. scattered ~ till [7 P. M. cloudless afterwards.                                          |
| 20    | Sunday.               |        |                                   |                                                                                                                  |
| 21    | 130.8                 | ..     | S. W. or W.                       | Cloudless till 10 A. M. scattered ~ till 3 P. M. cloudless afterwards.                                           |
| 22    | 138.8                 | ..     | W. or S. W.                       | Cloudless.                                                                                                       |
| 23    | 131.0                 | ..     | S. W. or W.                       | Ditto.                                                                                                           |
| 24    | 133.0                 | ..     | W. or S. W.                       | Scattered ~ till 8 A. M. scattered ~ till 5 P. M. cloudless afterwards.                                          |
| 25    | 137.0                 | ..     | S. W.                             | Cloudless till 6 A. M. scattered ~ or ~                                                                          |
| 26    | 132.8                 | ..     | S. W. or S.                       | Various clouds. [afterwards.                                                                                     |
| 27    | Sunday.               |        |                                   |                                                                                                                  |
| 28    | 135.0                 | ..     | S. or S. S. E.                    | [drizzling at 6 A. M.                                                                                            |
| 29    | 133.0                 | ..     | S. W. or variable.                | Cloudy the whole day, also thundering & Various clouds. [sunset.                                                 |
| 30    | 135.0                 | ..     | N. E. or variable.                | Cloudy, also thundering & raining after                                                                          |
| 31    | 125.0                 | 1.06   | N. or N. W.                       | Cloudy, also thundering & raining before sunrise.                                                                |

~ Cirri, ~ cirro strati, ~ cumuli, ~ cumulo strati, ~ nimbi, — strati, ~ cirro cumuli.

*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of January, 1856.*

MONTHLY RESULTS.

|                                                                |    |      | Inches. |
|----------------------------------------------------------------|----|------|---------|
| Mean height of the Barometer for the month,                    | .. | ...  | 30.049  |
| Max. height of the Barometer occurred at 9 A. M. on the 10th,  | .. | ...  | 30.243  |
| Min. height of the Barometer, occurred at 4 P. M. on the 31st, | .. | ...  | 29.867  |
| Extreme Range of the Barometer, during the month,              | .. | .... | 0.376   |

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|                                                     |    |      | °    |
|-----------------------------------------------------|----|------|------|
| Mean Dry Bulb Thermometer for the month,            | .. | .... | 68.6 |
| Max. Temperature occurred at 3 P. M. on the 26th,   | .. | .... | 82.2 |
| Min. Temperature, occurred at 6 A. M. on the 3rd,   | .. | .... | 55.0 |
| Extreme Range of the Temperature, during the month, | .. | .... | 27.2 |

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|                                                                        |      |      |              |
|------------------------------------------------------------------------|------|------|--------------|
| Mean Wet Bulb Thermometer for the month,                               | ..   | .... | 63.1         |
| Mean Dry Bulb Thermometer above Mean Wet Bulb Thermometer,...          |      |      | 5.5          |
| Computed Mean Dew Point for the month,                                 | ..   | .... | 60.3         |
| Mean Dry Bulb Thermometer above computed Mean Dew Point for the month, |      |      | 8.3          |
|                                                                        |      |      | Inches.      |
| Mean elastic force of vapour for the month,                            | ..   | .... | 0.528        |
|                                                                        |      |      | Troy grains. |
| Mean weight of vapour for the month,                                   | ..   | .... | 5.84         |
| Additional weight of vapour required for complete saturation.          | .... |      | 1.83         |
| Mean degree of Humidity for the month complete saturation being unity, |      |      | 0.76         |
|                                                                        |      |      | Inches       |
| Rained 2 days. Max. fall of Rain during 24 hours,                      | ..   | .... | 1.06         |
| Total amount of rain during the month,                                 | ..   | .... | 1.06         |



# Meteorological Observations.

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*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of February, 1856.*

Latitude 22° 33' 1" North, Longitude 88° 20' 34" East.

Height of the cistern of the Standard Barometer above the Level of the Sea <sup>feet.</sup> 18.11.

Daily Means, &c. of the Observations, and of the Hygrometrical elements  
dependent thereon.

| Date. | Mean Height of<br>the Barometer<br>at 32° Fah. | Range of the Barometer<br>during the day. |         |         | Mean Dry Bulb<br>Thermometer. | Range of the Tempera-<br>ture during the day. |      |       |
|-------|------------------------------------------------|-------------------------------------------|---------|---------|-------------------------------|-----------------------------------------------|------|-------|
|       |                                                | Max.                                      | Min.    | Diff.   |                               | Max.                                          | Min. | Diff. |
|       | Inches.                                        | Inches.                                   | Inches. | Inches. | °                             | °                                             | °    | °     |
| 1     | 29.961                                         | 30.048                                    | 29.887  | 0.161   | 68.2                          | 76.7                                          | 62.2 | 14.5  |
| 2     | 30.034                                         | .117                                      | .975    | .142    | 68.6                          | 76.4                                          | 62.4 | 14.0  |
| 3     | Sunday.                                        |                                           |         |         |                               |                                               |      |       |
| 4     | 29.980                                         | .057                                      | .923    | .134    | 70.1                          | 75.4                                          | 67.0 | 8.4   |
| 5     | 30.000                                         | .086                                      | .952    | .134    | 70.5                          | 78.0                                          | 65.2 | 12.8  |
| 6     | .033                                           | .120                                      | .985    | .135    | 68.4                          | 78.0                                          | 60.6 | 17.4  |
| 7     | .017                                           | .096                                      | .962    | .134    | 67.3                          | 77.6                                          | 58.4 | 19.2  |
| 8     | 29.994                                         | .095                                      | .935    | .160    | 67.2                          | 79.0                                          | 56.8 | 22.2  |
| 9     | .949                                           | .006                                      | .894    | .112    | 68.7                          | 78.8                                          | 59.3 | 19.5  |
| 10    | Sunday.                                        | •                                         |         |         |                               |                                               |      |       |
| 11    | .934                                           | .019                                      | .865    | .154    | 72.0                          | 81.4                                          | 65.0 | 16.4  |
| 12    | .879                                           | 29.958                                    | .794    | .164    | 71.8                          | 83.3                                          | 64.0 | 19.3  |
| 13    | .884                                           | .943                                      | .838    | .105    | 73.8                          | 84.8                                          | 64.8 | 20.0  |
| 14    | .908                                           | .994                                      | .856    | .138    | 75.6                          | 86.2                                          | 66.6 | 19.6  |
| 15    | .933                                           | 30.011                                    | .883    | .128    | 74.3                          | 82.6                                          | 67.9 | 14.7  |
| 16    | 30.013                                         | .100                                      | .957    | .143    | 70.9                          | 82.1                                          | 61.0 | 21.1  |
| 17    | Sunday.                                        |                                           |         |         |                               |                                               |      |       |
| 18    | 29.999                                         | .073                                      | .943    | .130    | 74.6                          | 82.9                                          | 68.8 | 14.0  |
| 19    | 30.054                                         | .143                                      | 30.003  | .140    | 71.2                          | 82.0                                          | 61.0 | 21.0  |
| 20    | .032                                           | .121                                      | 29.965  | .156    | 71.0                          | 82.2                                          | 60.2 | 22.0  |
| 21    | .016                                           | .104                                      | .948    | .156    | 71.6                          | 83.6                                          | 61.6 | 22.0  |
| 22    | 29.976                                         | .047                                      | .903    | .144    | 72.6                          | 84.6                                          | 62.4 | 22.2  |
| 23    | .962                                           | .034                                      | .896    | .138    | 74.3                          | 85.6                                          | 64.2 | 21.4  |
| 24    | Sunday.                                        |                                           |         |         |                               |                                               |      |       |
| 25    | .944                                           | .031                                      | .884    | .147    | 77.6                          | 88.8                                          | 69.8 | 19.0  |
| 26    | .885                                           | 29.979                                    | .792    | .187    | 78.1                          | 89.2                                          | 69.8 | 19.4  |
| 27    | .823                                           | .904                                      | .762    | .142    | 80.2                          | 91.8                                          | 71.0 | 20.8  |
| 28    | .893                                           | .967                                      | .811    | .156    | 80.4                          | 89.4                                          | 72.6 | 16.8  |
| 29    | .981                                           | 30.074                                    | .923    | .151    | 79.5                          | 86.8                                          | 76.0 | 10.8  |

*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of February, 1856.*

Daily Means, &c. of the Observations and of the Hygrometrical elements  
dependent thereon. (Continued.)

| Date. | Mean Wet Bulb Thermometer. | Dry Bulb above Wet. | Computed Dew Point. | Dry Bulb above Dew Point. | Mean Elastic force of Vapour. | Mean Weight of Vapour in a cubic foot of Air. | Additional Weight of Vapour required for complete saturation. | Mean degree of Humidity complete saturation being unity. |
|-------|----------------------------|---------------------|---------------------|---------------------------|-------------------------------|-----------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------|
|       | °                          | °                   | °                   | °                         | Inches.                       | T. gr                                         | T. gr.                                                        |                                                          |
| 1     | 64.3                       | 3.9                 | 62.0                | 6.2                       | 0.559                         | 6.18                                          | 1.40                                                          | 0.82                                                     |
| 2     | 63.7                       | 4.9                 | 61.2                | 7.4                       | .544                          | .01                                           | .66                                                           | .78                                                      |
| 3     | <i>Sunday.</i>             |                     |                     |                           |                               |                                               |                                                               |                                                          |
| 4     | 66.4                       | 3.7                 | 64.5                | 5.6                       | .607                          | .68                                           | .35                                                           | .83                                                      |
| 5     | 65.0                       | 5.5                 | 62.2                | 8.3                       | .563                          | .19                                           | .94                                                           | .76                                                      |
| 6     | 61.5                       | 6.9                 | 57.4                | 11.0                      | .480                          | 5.29                                          | 2.33                                                          | .69                                                      |
| 7     | 59.5                       | 7.8                 | 54.8                | 12.5                      | .440                          | 4.85                                          | .52                                                           | .66                                                      |
| 8     | 59.8                       | 7.4                 | 55.4                | 11.8                      | .449                          | .96                                           | .39                                                           | .68                                                      |
| 9     | 61.9                       | 6.8                 | 58.5                | 10.2                      | .498                          | 5.49                                          | .20                                                           | .71                                                      |
| 10    | <i>Sunday.</i>             |                     |                     |                           |                               |                                               |                                                               |                                                          |
| 11    | 64.1                       | 7.9                 | 60.1                | 11.9                      | .525                          | .75                                           | .75                                                           | .68                                                      |
| 12    | 64.5                       | 7.3                 | 60.8                | 11.0                      | .537                          | .89                                           | .56                                                           | .70                                                      |
| 13    | 66.1                       | 7.7                 | 62.2                | 11.6                      | .563                          | 6.14                                          | .84                                                           | .68                                                      |
| 14    | 71.0                       | 4.6                 | 68.7                | 6.9                       | .697                          | 7.58                                          | 1.90                                                          | .80                                                      |
| 15    | 64.7                       | 9.6                 | 59.9                | 14.4                      | .521                          | 5.69                                          | 3.43                                                          | .62                                                      |
| 16    | 61.4                       | 9.5                 | 56.6                | 14.3                      | .467                          | .13                                           | .10                                                           | .62                                                      |
| 17    | <i>Sunday.</i>             |                     |                     |                           |                               |                                               |                                                               |                                                          |
| 18    | 65.7                       | 8.9                 | 61.2                | 13.4                      | .544                          | .94                                           | .26                                                           | .65                                                      |
| 19    | 61.2                       | 10.0                | 56.2                | 15.0                      | .461                          | .05                                           | .25                                                           | .61                                                      |
| 20    | 62.3                       | 8.7                 | 57.9                | 13.1                      | .488                          | .35                                           | 2.90                                                          | .65                                                      |
| 21    | 62.8                       | 8.8                 | 58.4                | 13.2                      | .496                          | .43                                           | .97                                                           | .65                                                      |
| 22    | 63.6                       | 9.0                 | 59.1                | 13.5                      | .508                          | .55                                           | 3.11                                                          | .64                                                      |
| 23    | 65.6                       | 8.7                 | 61.2                | 13.1                      | .544                          | .94                                           | .18                                                           | .65                                                      |
| 24    | <i>Sunday.</i>             |                     |                     |                           |                               |                                               |                                                               |                                                          |
| 25    | 70.7                       | 6.9                 | 67.2                | 10.4                      | .664                          | 7.20                                          | 2.87                                                          | .72                                                      |
| 26    | 72.6                       | 5.5                 | 69.8                | 8.3                       | .722                          | .82                                           | .40                                                           | .71                                                      |
| 27    | 72.1                       | 8.1                 | 68.0                | 12.2                      | .681                          | .35                                           | 3.58                                                          | .68                                                      |
| 28    | 72.5                       | 7.9                 | 68.5                | 11.9                      | .692                          | .47                                           | .47                                                           | .68                                                      |
| 29    | 74.9                       | 4.6                 | 72.6                | 6.9                       | .790                          | 8.54                                          | 2.12                                                          | .80                                                      |

*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of February, 1856.*

Hourly Means, &c. of the Observations and of the Hygrometrical elements  
dependent thereon. (Continued.)

| Hour.      | Mean Height of the Barometer at 32° Fahr. | Range of the Barometer for each hour during the month. |         |         | Mean Dry Bulb Thermometer. | Range of the Temperature for each hour during the month. |      |       |
|------------|-------------------------------------------|--------------------------------------------------------|---------|---------|----------------------------|----------------------------------------------------------|------|-------|
|            |                                           | Max.                                                   | Min.    | Diff.   |                            | Max.                                                     | Min. | Diff. |
|            | Inches.                                   | Inches.                                                | Inches. | Inches. | °                          | °                                                        | °    | °     |
| Mid-night. | 29.962                                    | 30.042                                                 | 29.832  | 0.210   | 68.4                       | 77.0                                                     | 62.3 | 14.7  |
| 1          | .956                                      | .031                                                   | .819    | .212    | 67.7                       | 76.8                                                     | 60.6 | 16.2  |
| 2          | .943                                      | .022                                                   | .808    | .214    | 67.2                       | 77.0                                                     | 59.6 | 17.4  |
| 3          | .934                                      | .017                                                   | .792    | .225    | 66.6                       | 76.5                                                     | 58.9 | 17.6  |
| 4          | .925                                      | .012                                                   | .788    | .224    | 66.2                       | 76.0                                                     | 58.0 | 18.0  |
| 5          | .941                                      | .036                                                   | .799    | .237    | 65.2                       | 76.2                                                     | 57.6 | 18.6  |
| 6          | .961                                      | .048                                                   | .816    | .232    | 65.1                       | 76.4                                                     | 56.8 | 19.6  |
| 7          | .984                                      | .087                                                   | .848    | .239    | 64.9                       | 76.2                                                     | 57.2 | 19.0  |
| 8          | 30.010                                    | .110                                                   | .879    | .231    | 67.4                       | 77.0                                                     | 61.2 | 15.8  |
| 9          | .036                                      | .138                                                   | .893    | .245    | 71.5                       | 79.1                                                     | 67.2 | 11.9  |
| 10         | .045                                      | .143                                                   | .904    | .239    | 74.2                       | 81.8                                                     | 69.0 | 12.8  |
| 11         | .033                                      | .133                                                   | .894    | .239    | 77.0                       | 84.2                                                     | 70.6 | 13.6  |
| Noon.      | .006                                      | .103                                                   | .863    | .240    | 79.5                       | 87.8                                                     | 72.4 | 15.4  |
| 1          | 29.972                                    | .069                                                   | .824    | .245    | 81.2                       | 90.0                                                     | 74.2 | 15.8  |
| 2          | .941                                      | .033                                                   | .797    | .236    | 82.1                       | 91.4                                                     | 74.8 | 16.6  |
| 3          | .920                                      | .013                                                   | .776    | .237    | 82.6                       | 91.8                                                     | 74.9 | 16.9  |
| 4          | .910                                      | .003                                                   | .762    | .241    | 81.9                       | 91.4                                                     | 73.9 | 17.5  |
| 5          | .911                                      | .004                                                   | .768    | .236    | 80.5                       | 87.6                                                     | 73.2 | 14.4  |
| 6          | .918                                      | .011                                                   | .773    | .238    | 77.2                       | 85.5                                                     | 70.9 | 14.6  |
| 7          | .931                                      | .026                                                   | .783    | .243    | 74.6                       | 83.4                                                     | 69.1 | 14.3  |
| 8          | .935                                      | .047                                                   | .820    | .227    | 72.7                       | 81.0                                                     | 67.0 | 14.0  |
| 9          | .970                                      | .059                                                   | .830    | .229    | 71.4                       | 80.0                                                     | 65.4 | 14.6  |
| 10         | .978                                      | .068                                                   | .840    | .228    | 70.1                       | 78.4                                                     | 64.0 | 14.4  |
| 11         | .974                                      | .066                                                   | .837    | .229    | 69.4                       | 77.6                                                     | 63.0 | 14.6  |

*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of February, 1856.*

Hourly Means, &c. of the Observations and of the Hygrometrical elements  
dependent thereon.

| Hour.          | Mean Wet Bulb Thermo-<br>meter. | Dry Bulb above Wet. | Computed Dew Point. | Dry Bulb above Dew<br>Point. | Mean Elastic force<br>of Vapour. | Mean Weight of Vapour<br>in a Cubic foot of Air. | Additional Weight of Va-<br>pour required for com-<br>plete saturation. | Mean degree of Humidity,<br>complete saturation be-<br>ing unity. |
|----------------|---------------------------------|---------------------|---------------------|------------------------------|----------------------------------|--------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------|
|                | o                               | o                   | o                   | o                            | Inches.                          | T. gr.                                           | T. gr.                                                                  |                                                                   |
| Mid-<br>night. | 64.9                            | 3.5                 | 62.8                | 5.6                          | .574                             | 6.33                                             | 1.29                                                                    | 0.83                                                              |
| 1              | 64.6                            | 3.1                 | 62.7                | 5.0                          | .572                             | .33                                              | .13                                                                     | .85                                                               |
| 2              | 64.3                            | 2.9                 | 62.6                | 4.6                          | .570                             | .31                                              | .01                                                                     | .86                                                               |
| 3              | 63.8                            | 2.8                 | 62.1                | 4.5                          | .561                             | .21                                              | .00                                                                     | .86                                                               |
| 4              | 63.5                            | 2.7                 | 61.9                | 4.3                          | .557                             | .18                                              | 0.94                                                                    | .87                                                               |
| 5              | 62.7                            | 2.5                 | 61.2                | 4.0                          | .544                             | .05                                              | .86                                                                     | .88                                                               |
| 6              | 62.6                            | 2.5                 | 61.1                | 4.0                          | .543                             | .03                                              | .86                                                                     | .88                                                               |
| 7              | 62.3                            | 2.6                 | 60.7                | 4.2                          | .536                             | 5.95                                             | .90                                                                     | .87                                                               |
| 8              | 63.6                            | 3.8                 | 61.3                | 6.1                          | .546                             | 6.05                                             | 1.34                                                                    | .82                                                               |
| 9              | 65.2                            | 6.3                 | 62.0                | 9.5                          | .559                             | .13                                              | 2.25                                                                    | .73                                                               |
| 10             | 65.4                            | 8.8                 | 61.0                | 13.2                         | .541                             | 5.90                                             | 3.19                                                                    | .65                                                               |
| 11             | 66.2                            | 10.8                | 60.8                | 16.2                         | .537                             | .83                                              | 4.06                                                                    | .59                                                               |
|                |                                 |                     |                     |                              |                                  |                                                  |                                                                         |                                                                   |
| Noon.          | 66.8                            | 12.7                | 60.4                | 19.1                         | .530                             | .72                                              | .94                                                                     | .54                                                               |
| 1              | 67.2                            | 14.0                | 60.2                | 21.0                         | .527                             | .66                                              | 5.55                                                                    | .51                                                               |
| 2              | 67.7                            | 14.4                | 60.5                | 21.6                         | .532                             | .71                                              | .80                                                                     | .50                                                               |
| 3              | 67.9                            | 14.7                | 60.5                | 22.1                         | .532                             | .71                                              | .97                                                                     | .49                                                               |
| 4              | 67.6                            | 14.3                | 60.4                | 21.5                         | .530                             | .69                                              | .75                                                                     | .50                                                               |
| 5              | 67.7                            | 12.8                | 61.3                | 19.2                         | .546                             | .89                                              | .09                                                                     | .54                                                               |
| 6              | 67.8                            | 9.4                 | 63.1                | 14.1                         | .580                             | 6.29                                             | 3.66                                                                    | .63                                                               |
| 7              | 67.1                            | 7.5                 | 63.3                | 11.3                         | .584                             | .37                                              | 2.83                                                                    | .69                                                               |
| 8              | 66.7                            | 6.0                 | 63.7                | 9.0                          | .591                             | .47                                              | .21                                                                     | .75                                                               |
| 9              | 66.2                            | 5.2                 | 63.6                | 7.8                          | .590                             | .46                                              | 1.89                                                                    | .77                                                               |
| 10             | 65.6                            | 4.5                 | 63.3                | 6.8                          | .584                             | .42                                              | .61                                                                     | .80                                                               |
| 11             | 65.2                            | 4.2                 | 63.1                | 6.3                          | .580                             | .39                                              | .47                                                                     | .81                                                               |

# Meteorological Observations.

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## Abstract of the Results of the Hourly Meteorological Observations taken at the Surveyor General's Office, Calcutta, in the month of February, 1856.

Solar radiation, Weather, &c.

| Date. | Max. Solar radiation. | Rain.   | Prevailing direction of the Wind. | General Aspect of the Sky.                                                                                    |
|-------|-----------------------|---------|-----------------------------------|---------------------------------------------------------------------------------------------------------------|
|       | o                     | Inches. |                                   |                                                                                                               |
| 1     | 132.0                 | ..      | N. W.                             | Cloudless till 11 A. M. scattered $\curvearrowright$ till 6 P. M. cloudless afterwards.                       |
| 2     | 133.0                 | ..      | N. W.                             | Cloudless.                                                                                                    |
| 3     | Sunday.               |         |                                   |                                                                                                               |
| 4     | ..                    | ..      | E. or N. W.                       | Cloudy and drizzling till sunrise, also continues cloudy till 4 P. M. cloudless afterwards.                   |
| 5     | 124.0                 | ..      | N. W. or N.                       | Various clouds till Noon, scattered $\curvearrowright$ till 6 P. M. cloudless afterwards.                     |
| 6     | 135.2                 | ..      | N. or W.                          | Cloudless.                                                                                                    |
| 7     | 136.0                 | ..      | W. or N. W.                       | Cloudless.                                                                                                    |
| 8     | 139.0                 | ..      | N. W. or N.                       | Cloudless.                                                                                                    |
| 9     | 135.0                 | ..      | Calm or W. or N. W.               | Cloudless.                                                                                                    |
| 10    | Sunday.               |         |                                   |                                                                                                               |
| 11    | 140.2                 | ..      | W.                                | Cloudless.                                                                                                    |
| 12    | 138.0                 | ..      | W.                                | Cloudless.                                                                                                    |
| 13    | 138.0                 | ..      | W.                                | Cloudless.                                                                                                    |
| 14    | 141.2                 | ..      | W. or S. W. or S.                 | Cloudless till 4 A. M. cloudy till 10 A. M.                                                                   |
| 15    | 140.0                 | ..      | S. or S. W.                       | Cloudless. [cloudless afterwards,                                                                             |
| 16    | 140.0                 | ..      | S. W. or W.                       | Cloudless.                                                                                                    |
| 17    | Sunday.               |         |                                   |                                                                                                               |
| 18    | 134.0                 | ..      | W. or N. W.                       | Cloudless.                                                                                                    |
| 19    | 136.3                 | ..      | N. or W. N. W.                    | Cloudless.                                                                                                    |
| 20    | 135.0                 | ..      | W. or N. W.                       | Cloudless.                                                                                                    |
| 21    | 140.0                 | ..      | W.                                | Cloudless.                                                                                                    |
| 22    | 145.0                 | ..      | N. W. or W.                       | Cloudless.                                                                                                    |
| 23    | 138.0                 | ..      | N. W. or W.                       | Cloudless.                                                                                                    |
| 24    | Sunday.               |         |                                   |                                                                                                               |
| 25    | 137.0                 | ..      | W.                                | Cloudless.                                                                                                    |
| 26    | 139.0                 | ..      | W. or S.                          | Cloudless till 10 A. M. scattered $\curvearrowright$ till 5 P. M. cloudless afterwards.                       |
| 27    | 140.0                 | ..      | S.                                | Cloudless.                                                                                                    |
| 28    | 138.5                 | ..      | S. or E.                          | Cloudless till 5 A. M. scattered $\curvearrowright$ and $\curvearrowright$ till 7 P. M. cloudless afterwards. |
| 29    | 135.0                 | ..      | S.                                | Cloudy.                                                                                                       |

$\curvearrowright$  Cirri,  $\curvearrowright$  Cirro-strati,  $\curvearrowright$  Cumuli,  $\curvearrowright$  Cumulo-strati,  $\curvearrowright$  Nimbi, — Strati,  
 $\curvearrowright$  Cirro-cumuli.

*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of February, 1856.*

MONTHLY RESULTS.

|                                                                 |    |    |         |
|-----------------------------------------------------------------|----|----|---------|
|                                                                 |    |    | Inches. |
| Mean height of the Barometer, for the month,                    | .. | .. | 29.963  |
| Max. height of the Barometer, occurred at 10 A. M. on the 19th, | .. | .. | 30.143  |
| Min. height of the Barometer, occurred at 4 P. M. on the 27th,  | .. | .. | 29.762  |
| Extreme Range of the Barometer, during the month,               | .. | .. | 0.381   |

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|                                                     |    |    |      |
|-----------------------------------------------------|----|----|------|
|                                                     |    |    | °    |
| Mean dry bulb Thermometer for the month,            | .. | .. | 72.7 |
| Max. Temperature occurred at 3 P. M. on the 27th,   | .. | .. | 91.8 |
| Min. Temperature, occurred at 6 A. M. on the 8th,   | .. | .. | 56.8 |
| Extreme Range of the Temperature, during the month, | .. | .. | 35.0 |

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|                                                                         |    |    |              |
|-------------------------------------------------------------------------|----|----|--------------|
| Mean wet bulb Thermometer for the month,                                | .. | .. | 65.5         |
| Mean dry bulb Thermometer above Mean wet bulb Thermometer,              | .. | .. | 7.2          |
| Computed Mean dew point for the month,                                  | .. | .. | 61.9         |
| Mean dry bulb Thermometer above computed Mean Dew point for the month,  |    |    | 10.8         |
|                                                                         |    |    | Inches.      |
| Mean elastic force of vapour for the month,                             | .. | .. | 0.557        |
|                                                                         |    |    | Troy grains. |
| Mean weight of vapour for the month,                                    | .. | .. | 6.09         |
| Additional weight of vapour required for complete saturation,           | .. | .. | 2.59         |
| Mean degree of humidity for the month, complete saturation being unity. |    |    | 0.70         |
|                                                                         |    |    | Inches.      |
| Total amount of Rain during the month,                                  | .. | .. | 0.00         |

# Meteorological Observations.

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*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of March, 1856.*

Latitude 22° 33' 1" North. Longitude 88° 20' 34" East.

Height of the Cistern of the Standard Barometer above the level of the Sea, 18.11 Feet.

Daily Means, &c. of the Observations and of the Hygrometrical elements  
dependent thereon.

| Date. | Mean Height of<br>the Barometer<br>at 32° Fahr. | Range of the Barometer<br>during the day. |                   |                  | Mean Dry Bulb<br>Thermometer. | Range of the Tempera-<br>ture during the day. |           |           |
|-------|-------------------------------------------------|-------------------------------------------|-------------------|------------------|-------------------------------|-----------------------------------------------|-----------|-----------|
|       |                                                 | Max.                                      | Min.              | Diff.            |                               | Max.                                          | Min.      | Diff.     |
| 1     | Inches.<br>30.017                               | Inches.<br>30.076                         | Inches.<br>29.963 | Inches.<br>0.113 | °<br>79.4                     | °<br>86.8                                     | °<br>75.2 | °<br>11.6 |
| 2     | Sunday.                                         |                                           |                   |                  |                               |                                               |           |           |
| 3     | 29.995                                          | .080                                      | .913              | .167             | 79.7                          | 88.8                                          | 73.6      | 15.2      |
| 4     | .977                                            | .042                                      | .910              | .132             | 80.3                          | 88.4                                          | 73.8      | 14.6      |
| 5     | .949                                            | .030                                      | .874              | .156             | 81.7                          | 91.1                                          | 75.4      | 15.7      |
| 6     | .924                                            | .002                                      | .852              | .150             | 81.3                          | 90.6                                          | 74.6      | 16.0      |
| 7     | .897                                            | 29.978                                    | .825              | .153             | 81.9                          | 92.0                                          | 74.6      | 17.4      |
| 8     | .878                                            | .942                                      | .799              | .143             | 81.6                          | 92.0                                          | 74.0      | 18.0      |
| 9     | Sunday.                                         | •                                         |                   |                  |                               |                                               |           |           |
| 10    | .835                                            | .906                                      | .769              | .137             | 80.5                          | 89.8                                          | 74.8      | 15.0      |
| 11    | .849                                            | .918                                      | .795              | .123             | 79.9                          | 88.2                                          | 73.6      | 14.6      |
| 12    | .868                                            | .935                                      | .791              | .144             | 79.2                          | 87.2                                          | 71.7      | 15.5      |
| 13    | .888                                            | .965                                      | .809              | .156             | 79.5                          | 88.9                                          | 72.2      | 16.7      |
| 14    | .966                                            | 30.032                                    | .896              | .136             | 75.7                          | 82.4                                          | 72.6      | 9.8       |
| 15    | .960                                            | .029                                      | .883              | .146             | 74.5                          | 82.7                                          | 70.0      | 12.7      |
| 16    | Sunday.                                         |                                           |                   |                  |                               |                                               |           |           |
| 17    | .904                                            | 29.992                                    | .847              | .145             | 76.5                          | 83.2                                          | 71.6      | 11.6      |
| 18    | .877                                            | .963                                      | .799              | .164             | 78.1                          | 86.3                                          | 71.0      | 15.3      |
| 19    | .778                                            | .858                                      | .644              | .214             | 79.7                          | 89.8                                          | 71.4      | 18.4      |
| 20    | .742                                            | 29.853                                    | .665              | .188             | 74.9                          | 83.8                                          | 67.6      | 16.2      |
| 21    | Good Friday.                                    |                                           |                   |                  |                               |                                               |           |           |
| 22    | .810                                            | .888                                      | .751              | .137             | 80.8                          | 89.6                                          | 73.0      | 16.6      |
| 23    | Sunday.                                         |                                           |                   |                  |                               |                                               |           |           |
| 24    | .708                                            | .782                                      | .645              | .137             | 81.9                          | 88.6                                          | 76.1      | 12.5      |
| 25    | .674                                            | .744                                      | .619              | .125             | 82.3                          | 89.0                                          | 77.3      | 11.7      |
| 26    | .736                                            | .802                                      | .675              | .127             | 82.9                          | 92.0                                          | 75.6      | 16.4      |
| 27    | .794                                            | .855                                      | .744              | .111             | 82.8                          | 90.4                                          | 76.4      | 14.0      |
| 28    | .836                                            | .907                                      | .776              | .131             | 82.6                          | 90.6                                          | 76.4      | 14.2      |
| 29    | .830                                            | .927                                      | .753              | .174             | 82.4                          | 91.7                                          | 75.4      | 16.3      |
| 30    | Sunday.                                         |                                           |                   |                  |                               |                                               |           |           |
| 31    | .810                                            | .886                                      | .750              | .136             | 84.7                          | 95.6                                          | 75.5      | 20.1      |

*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of March, 1856.*

Daily Means, &c. of the Observations and of the Hygrometrical elements  
dependent thereon.

| Date. | Mean Wet Bulb Ther-<br>mometer. | Dry Bulb above Wet. | Computed Dew Point. | Dry Bulb above Dew<br>Point. | Mean Elastic force of<br>Vapour. | Mean Weight of Vapour<br>in a cubic foot of air. | Additional weight of Va-<br>pour required for com-<br>plete saturation. | Mean degree of Humi-<br>dity, complete satura-<br>tion being unity. |
|-------|---------------------------------|---------------------|---------------------|------------------------------|----------------------------------|--------------------------------------------------|-------------------------------------------------------------------------|---------------------------------------------------------------------|
| 1     | 74.9                            | 4.5                 | 72.6                | 6.8                          | 0.790                            | 8.54                                             | 2.08                                                                    | 0.80                                                                |
| 2     | <i>Sunday.</i>                  |                     |                     |                              |                                  |                                                  |                                                                         |                                                                     |
| 3     | 74.5                            | 5.2                 | 71.9                | 7.8                          | .773                             | .34                                              | .38                                                                     | .78                                                                 |
| 4     | 75.5                            | 4.8                 | 73.1                | 7.2                          | .803                             | .67                                              | .24                                                                     | .80                                                                 |
| 5     | 74.9                            | 6.8                 | 71.5                | 10.2                         | .763                             | .21                                              | 3.16                                                                    | .72                                                                 |
| 6     | 75.5                            | 5.8                 | 72.6                | 8.7                          | .790                             | .50                                              | 2.74                                                                    | .76                                                                 |
| 7     | 75.5                            | 6.4                 | 72.3                | 9.6                          | .783                             | .41                                              | 3.03                                                                    | .74                                                                 |
| 8     | 73.9                            | 7.7                 | 70.0                | 11.6                         | .727                             | 7.81                                             | .53                                                                     | .69                                                                 |
| 9     | <i>Sunday.</i>                  |                     |                     |                              |                                  |                                                  |                                                                         |                                                                     |
| 10    | 75.5                            | 5.0                 | 73.0                | 7.5                          | .801                             | 8.62                                             | 2.36                                                                    | .79                                                                 |
| 11    | 74.6                            | 5.3                 | 71.9                | 8.0                          | .773                             | .34                                              | .44                                                                     | .77                                                                 |
| 12    | 73.6                            | 5.6                 | 70.8                | 8.4                          | .746                             | .07                                              | .49                                                                     | .76                                                                 |
| 13    | 73.2                            | 6.3                 | 70.0                | 9.5                          | .727                             | 7.84                                             | .82                                                                     | .74                                                                 |
| 14    | 72.5                            | 3.2                 | 70.9                | 4.8                          | .748                             | 8.15                                             | 1.36                                                                    | .86                                                                 |
| 15    | 70.6                            | 3.9                 | 68.6                | 5.9                          | .695                             | 7.58                                             | .60                                                                     | .83                                                                 |
| 16    | <i>Sunday.</i>                  |                     |                     |                              |                                  |                                                  |                                                                         |                                                                     |
| 17    | 73.1                            | 3.4                 | 71.4                | 5.1                          | .761                             | 8.27                                             | .48                                                                     | .85                                                                 |
| 18    | 73.4                            | 4.7                 | 71.0                | 7.1                          | .751                             | .13                                              | 2.09                                                                    | .80                                                                 |
| 19    | 75.4                            | 4.3                 | 73.2                | 6.5                          | .806                             | .70                                              | .02                                                                     | .81                                                                 |
| 20    | 70.1                            | 4.8                 | 67.7                | 7.2                          | .674                             | 7.36                                             | 1.92                                                                    | .79                                                                 |
| 21    | <i>Good Friday.</i>             |                     |                     |                              |                                  |                                                  |                                                                         |                                                                     |
| 22    | 75.3                            | 5.5                 | 72.5                | 8.3                          | .787                             | 8.49                                             | 2.58                                                                    | .77                                                                 |
| 23    | <i>Sunday.</i>                  |                     |                     |                              |                                  |                                                  |                                                                         |                                                                     |
| 24    | 77.9                            | 4.0                 | 75.9                | 6.0                          | .879                             | 9.46                                             | 1.98                                                                    | .83                                                                 |
| 25    | 78.0                            | 4.3                 | 75.8                | 6.5                          | .876                             | .41                                              | 2.17                                                                    | .81                                                                 |
| 26    | 76.5                            | 6.4                 | 73.3                | 9.6                          | .809                             | 8.66                                             | 3.13                                                                    | .74                                                                 |
| 27    | 76.8                            | 6.0                 | 73.8                | 9.0                          | .822                             | .82                                              | 2.93                                                                    | .75                                                                 |
| 28    | 76.5                            | 6.1                 | 73.4                | 9.2                          | .811                             | .71                                              | .97                                                                     | .75                                                                 |
| 29    | 76.1                            | 6.3                 | 72.9                | 9.5                          | .797                             | .56                                              | 3.05                                                                    | .74                                                                 |
| 30    | <i>Sunday.</i>                  |                     |                     |                              |                                  |                                                  |                                                                         |                                                                     |
| 31    | 78.3                            | 6.4                 | 75.1                | 9.6                          | .857                             | 9.15                                             | .27                                                                     | .74                                                                 |



*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of March, 1856.*

Hourly Means, &c. of the Observations and of the Hygrometrical elements  
dependent thereon. (Continued.)

| Hour.          | Mean Height of<br>the Barometer<br>at 32° Fahr. | Range of the Barometer<br>for each hour during<br>the month. |         |         | Mean Dry Bulb<br>Thermometer. | Range of the Temperature<br>for each hour during<br>the month. |      |       |
|----------------|-------------------------------------------------|--------------------------------------------------------------|---------|---------|-------------------------------|----------------------------------------------------------------|------|-------|
|                |                                                 | Max.                                                         | Min.    | Diff.   |                               | Max.                                                           | Min. | Diff. |
|                | Inches.                                         | Inches.                                                      | Inches. | Inches. | °                             | °                                                              | °    | °     |
| Mid-<br>night. | 29.870                                          | 30.025                                                       | 29.693  | 0.332   | 76.1                          | 80.0                                                           | 69.8 | 10.2  |
| 1              | .856                                            | .019                                                         | .683    | .336    | 75.6                          | 79.0                                                           | 68.6 | 10.4  |
| 2              | .846                                            | .010                                                         | .663    | .347    | 75.4                          | 78.8                                                           | 69.6 | 9.2   |
| 3              | .835                                            | .001                                                         | .648    | .353    | 74.9                          | 78.0                                                           | 69.9 | 8.1   |
| 4              | .830                                            | 29.993                                                       | .633    | .360    | 74.7                          | 77.6                                                           | 70.0 | 7.6   |
| 5              | .846                                            | .987                                                         | .645    | .342    | 74.4                          | 77.6                                                           | 70.3 | 7.3   |
| 6              | .864                                            | 30.012                                                       | .669    | .343    | 74.2                          | 77.3                                                           | 70.4 | 6.9   |
| 7              | .887                                            | .042                                                         | .697    | .345    | 74.6                          | 77.9                                                           | 70.4 | 7.5   |
| 8              | .914                                            | .086                                                         | .721    | .335    | 77.1                          | 80.5                                                           | 72.2 | 8.3   |
| 9              | .930                                            | .077                                                         | .744    | .333    | 79.8                          | 83.6                                                           | 74.6 | 9.0   |
| 10             | .930                                            | .080                                                         | .743    | .337    | 82.5                          | 86.6                                                           | 77.1 | 9.5   |
| 11             | .917                                            | .071                                                         | .737    | .334    | 84.4                          | 89.2                                                           | 77.6 | 11.6  |
| Noon.          | .891                                            | .064                                                         | .712    | .352    | 86.3                          | 91.4                                                           | 79.9 | 11.5  |
| 1              | .862                                            | .034                                                         | .678    | .356    | 87.4                          | 93.4                                                           | 80.0 | 13.4  |
| 2              | .830                                            | .001                                                         | .663    | .338    | 88.1                          | 94.7                                                           | 75.2 | 19.5  |
| 3              | .809                                            | 29.984                                                       | .646    | .338    | 88.2                          | 95.6                                                           | 74.3 | 21.3  |
| 4              | .798                                            | .967                                                         | .633    | .334    | 87.4                          | 95.5                                                           | 73.6 | 21.9  |
| 5              | .798                                            | .976                                                         | .629    | .347    | 85.8                          | 94.2                                                           | 73.8 | 20.4  |
| 6              | .809                                            | .980                                                         | .619    | .361    | 84.6                          | 91.6                                                           | 74.2 | 17.4  |
| 7              | .829                                            | .997                                                         | .658    | .339    | 81.3                          | 87.6                                                           | 73.8 | 13.8  |
| 8              | .852                                            | 30.032                                                       | .667    | .365    | 79.8                          | 85.1                                                           | 73.0 | 12.1  |
| 9              | .874                                            | .054                                                         | .660    | .394    | 78.4                          | 83.1                                                           | 68.5 | 14.6  |
| 10             | .877                                            | .063                                                         | .653    | .410    | 77.5                          | 82.0                                                           | 67.6 | 14.4  |
| 11             | .885                                            | .064                                                         | .684    | .380    | 76.6                          | 81.4                                                           | 69.0 | 12.4  |

*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of March, 1856.*

Hourly Means, &c. of the Observations and of the Hygrometrical elements  
dependent thereon.

| Hour.          | Mean Wet Bulb Thermo-<br>meter. | Dry Bulb above Wet. | Computed Dew Point. | Dry Bulb above Dew<br>Point. | Mean Elastic force of<br>Vapour. | Mean Weight of Vapour<br>in a cubic foot of Air. | Additional weight of va-<br>pour required for com-<br>plete saturation. | Mean degree of Humidity,<br>complete saturation be-<br>ing unity. |
|----------------|---------------------------------|---------------------|---------------------|------------------------------|----------------------------------|--------------------------------------------------|-------------------------------------------------------------------------|-------------------------------------------------------------------|
|                | o                               | o                   | o                   | o                            | Inches.                          | T. gr.                                           | T. gr.                                                                  |                                                                   |
| Mid-<br>night. | 73.7                            | 2.4                 | 72.5                | 3.6                          | 0.787                            | 8.56                                             | 1.07                                                                    | 0.89                                                              |
| 1              | 73.5                            | 2.1                 | 72.4                | 3.2                          | .785                             | .55                                              | 0.93                                                                    | .90                                                               |
| 2              | 73.4                            | 2.0                 | 72.4                | 3.0                          | .785                             | .55                                              | .88                                                                     | .91                                                               |
| 3              | 73.1                            | 1.8                 | 72.2                | 2.7                          | .781                             | .50                                              | .78                                                                     | .92                                                               |
| 4              | 72.9                            | 1.8                 | 72.0                | 2.7                          | .776                             | .45                                              | .78                                                                     | .92                                                               |
| 5              | 72.6                            | 1.8                 | 71.7                | 2.7                          | .768                             | .38                                              | .77                                                                     | .92                                                               |
| 6              | 72.6                            | 1.6                 | 71.8                | 2.4                          | .771                             | .42                                              | .67                                                                     | .93                                                               |
| 7              | 72.9                            | 1.7                 | 72.0                | 2.6                          | .776                             | .45                                              | .75                                                                     | .92                                                               |
| 8              | 74.4                            | 2.7                 | 73.0                | 4.1                          | .801                             | .69                                              | 1.23                                                                    | .88                                                               |
| 9              | 75.7                            | 4.1                 | 73.6                | 6.2                          | .817                             | .82                                              | .93                                                                     | .82                                                               |
| 10             | 76.3                            | 6.2                 | 73.2                | 9.3                          | .806                             | .66                                              | 2.98                                                                    | .74                                                               |
| 11             | 76.7                            | 7.7                 | 72.8                | 11.6                         | .795                             | .50                                              | 3.81                                                                    | .69                                                               |
| Noon.          | 77.1                            | 9.2                 | 72.5                | 13.8                         | .787                             | .39                                              | 4.63                                                                    | .64                                                               |
| 1              | 77.1                            | 10.3                | 71.9                | 15.5                         | .773                             | .21                                              | 5.24                                                                    | .61                                                               |
| 2              | 76.7                            | 11.4                | 71.0                | 17.1                         | .751                             | 7.97                                             | .75                                                                     | .58                                                               |
| 3              | 76.5                            | 11.7                | 70.6                | 17.6                         | .741                             | .86                                              | .90                                                                     | .57                                                               |
| 4              | 76.4                            | 11.0                | 70.9                | 16.5                         | .748                             | .95                                              | .50                                                                     | .59                                                               |
| 5              | 76.3                            | 9.5                 | 71.5                | 14.3                         | .763                             | 8.15                                             | 4.68                                                                    | .64                                                               |
| 6              | 75.9                            | 7.7                 | 72.0                | 11.6                         | .776                             | .30                                              | 3.73                                                                    | .69                                                               |
| 7              | 75.4                            | 5.9                 | 72.4                | 8.9                          | .785                             | .45                                              | 2.79                                                                    | .75                                                               |
| 8              | 75.2                            | 4.6                 | 72.9                | 6.9                          | .797                             | .61                                              | .14                                                                     | .80                                                               |
| 9              | 74.6                            | 3.8                 | 72.7                | 5.7                          | .792                             | .58                                              | 1.73                                                                    | .83                                                               |
| 10             | 74.2                            | 3.3                 | 72.5                | 5.0                          | .787                             | .54                                              | .50                                                                     | .85                                                               |
| 11             | 73.8                            | 2.8                 | 72.4                | 4.2                          | .785                             | .53                                              | .24                                                                     | .87                                                               |

*Meteorological Observations.*

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*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office, Calcutta,  
in the month of March, 1856.*

Solar radiation, Weather, &c.

| Date. | Max. Solar radiation. | Rain.   | Prevailing direction of the Wind. | General Aspect of the Sky.                                                                                                                              |
|-------|-----------------------|---------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
|       | °                     | Inches. |                                   |                                                                                                                                                         |
| 1     | 130.0                 | ...     | S. or S. E.                       | Cloudy till 8 A. M. scattered ☾i and ☿i<br>[till 5 P. M. cloudless afterwards.                                                                          |
| 2     | <i>Sunday.</i>        |         |                                   | [cloudless afterwards.                                                                                                                                  |
| 3     | 132.3                 | ...     | S.                                | Cloudless till 6 A. M. cloudy till 4 P. M.                                                                                                              |
| 4     | 134.7                 | ...     | S.                                | Cloudless till 8 A. M. cloudy till 6 P. M.                                                                                                              |
| 5     | 142.7                 | ...     | S. or S. W.                       | [cloudless afterwards.                                                                                                                                  |
| 6     | 135.0                 | ...     | S.                                | Cloudless till 6 A. M. scattered ☿i till 6<br>[P. M. cloudless afterwards.                                                                              |
| 7     | 136.6                 | ...     | S.                                | Scattered clouds.                                                                                                                                       |
| 8     | 139.0                 | ...     | S.                                | Cloudless.                                                                                                                                              |
| 9     | <i>Sunday.</i>        |         |                                   | Ditto.                                                                                                                                                  |
| 10    | 135.0                 | ...     | S.                                | [6 P. M. cloudless afterwards.                                                                                                                          |
| 11    | 138.7                 | ...     | S.                                | Cloudless till 10 A. M. scattered ☾i till                                                                                                               |
| 12    | 132.0                 | ...     | S. or S. E.                       | Cloudless till 8 A. M. scattered ☿i till 4<br>[P. M. cloudless afterwards.                                                                              |
| 13    | 134.9                 | ...     | S. E. or S.                       | Cloudless till 7 A. M. scattered ☿i till 6<br>[P. M. cloudless afterwards. [wards.                                                                      |
| 14    | ...                   | 0.16    | E. or S. W.                       | Cloudless till 8 A. M. scattered ☿i after-<br>Cloudless till 5 A. M. cloudy afterwards,<br>also raining & thundering & lightning<br>between 2 & 4 P. M. |
| 15    | 126.6                 | 0.41    | S. E. or E.                       | Cloudy with drizzling before sunrise and<br>[also rain at 4 P. M.                                                                                       |
| 16    | <i>Sunday.</i>        | 0.52    |                                   | [rain between 5 & 6 P. M.                                                                                                                               |
| 17    | 138.0                 | 0.17    | E. or N. E. or N. or W            | Cloudy or scattered ☿i also a shower of                                                                                                                 |
| 18    | 130.0                 | ...     | W. or N. E. or S.                 | Clouds of various kinds.                                                                                                                                |
| 19    | 135.0                 | 0.47    | S. or S. W.                       | Ditto ditto, (also a N. W. gale between<br>10h. 15m. & 10h. 47m. and rain after-<br>wards.                                                              |
| 20    | 133.5                 | 0.50    | S.                                | Cloudy with rain after 8 P. M.                                                                                                                          |
| 21    | <i>Good Friday.</i>   |         |                                   |                                                                                                                                                         |
| 22    | 142.0                 | ...     | S. E. or E. or S. W               | Cloudless till 3 A. M., cloudy or scattered<br>☿i till 5 P. M. cloudless till 9 P. M.<br>[cloudy afterwards.                                            |
| 23    | <i>Sunday</i>         |         |                                   | Cloudy. [scattered ☿i afterwards.                                                                                                                       |
| 24    | 124.0                 | ...     | S.                                | Cloudy till 9 A. M. scattered ☾i till 4 P. M.                                                                                                           |
| 25    | 128.0                 | ...     | S.                                | Cloudless till 8 A. M. scattered ☿i till 7<br>[P. M. cloudless afterwards.                                                                              |
| 26    | 148.4                 | ...     | S. or S. E. or N. E.              | Cloudless till 1 P. M. scattered ☿i after-<br>[wards. [P. M. cloudless afterwards.                                                                      |
| 27    | 132.0                 | ...     | S. E. or S. W. or S.              | Cloudless till 11 A. M. scattered ☿i till 4<br>[cloudless afterwards.                                                                                   |
| 28    | 145.0                 | ...     | S. or S. W. or S.                 | Cloudless till 2 A. M. cloudy till 8 A. M.                                                                                                              |
| 29    | 147.0                 | ...     | S. or S. W.                       | [cloudless afterwards.                                                                                                                                  |
| 30    | <i>Sunday.</i>        |         |                                   |                                                                                                                                                         |
| 31    | 149.0                 | ...     | S.                                | Cloudless.                                                                                                                                              |

☿i Cirri, ☾i Cirro Strati, ☿i Cumuli, ☾i Cumulo Strati, ☾i Nimbi. —i Strati,  
☾i Cirro Cumuli.

*Abstract of the Results of the Hourly Meteorological Observations  
taken at the Surveyor General's Office Calcutta,  
in the month of March, 1856.*

MONTHLY RESULTS.

|                                                               |    |    | Inches. |
|---------------------------------------------------------------|----|----|---------|
| Mean height of the Barometer for the month,                   | .. | .. | 29.860  |
| Max. height of the Barometer occurred at 10 A. M. on the 3d,  | .. | .. | 30.080  |
| Min. height of the Barometer occurred at 6 P. M. on the 25th, | .. | .. | 29.619  |
| Extreme range of the Barometer during the month,              | .. | .. | 0.461   |

|                                                    |    |    | 0    |
|----------------------------------------------------|----|----|------|
| Mean dry bulb Thermometer for the month,           | .. | .. | 80.2 |
| Max. Temperature occurred at 3 P. M. on the 31st,  | .. | .. | 95.6 |
| Min. Temperature occurred at 10 P. M. on the 20th, | .. | .. | 67.6 |
| Extreme range of the Temperature during the month, | .. | .. | 28.0 |

|                                                            |    |    |      |
|------------------------------------------------------------|----|----|------|
| Mean wet bulb Thermometer for the month,                   | .. | .. | 74.9 |
| Mean dry bulb Thermometer above mean wet bulb Thermometer, | .. | .. | 5.3  |
| Computed mean dew point for the month,                     | .. | .. | 72.2 |
| Mean dry bulb Thermometer above computed mean dew point,   | .. | .. | 8.0  |

|                                             |    |    | Inches. |
|---------------------------------------------|----|----|---------|
| Mean elastic force of vapour for the month, | .. | .. | 0.781   |

|                                                                         |    |    | Troy grains. |
|-------------------------------------------------------------------------|----|----|--------------|
| Mean weight of vapour for the month,                                    | .. | .. | 8.41         |
| Additional weight of vapour required for complete saturation,           | .. | .. | 2.47         |
| Mean degree of humidity, for the month complete saturation being unity, | .. | .. | 0.77         |

|                                                   |    |    | Inches. |
|---------------------------------------------------|----|----|---------|
| Rained 6 days.—Max. fall of rain during 24 hours, | .. | .. | 0.52    |
| Total amount of rain during the month,            | .. | .. | 2.23    |

*Meteorological Register kept at Agra.*

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*Meteorological Register kept at the Office of the Secretary to Government, N. W. P., Agra, for the month of March, 1856.*

Maximum pressure observed at 9.50 A. M.

| Date. | Barometer. | Temperature. |         |           | Direction of Wind. | Quantity of Rain. | Aspect of the Sky. |
|-------|------------|--------------|---------|-----------|--------------------|-------------------|--------------------|
|       |            | Of Mercury.  | Of Air. | Wet Bulb. |                    |                   |                    |
| 1     | 29.649     | 74.0         | 74.4    | 59.0      | N. W.              | ..                | Clear.             |
| 2     | 29.655     | 78.5         | 79.5    | 59.0      | S. W.              | ..                | Ditto.             |
| 3     | 29.623     | 75.9         | 77.0    | 60.0      | N. W.              | ..                | Ditto.             |
| 4     | 29.587     | 79.5         | 80.5    | 59.5      | W.                 | ..                | Ditto.             |
| 5     | 29.581     | 81.5         | 82.2    | 61.5      | N. W.              | ..                | Ditto.             |
| 6     | 29.545     | 82.0         | 84.1    | 62.6      | N. W.              | ..                | Ditto.             |
| 7     | 29.505     | 82.9         | 84.0    | 64.0      | S. W.              | ..                | Ditto.             |
| 8     | 29.475     | 84.8         | 85.2    | 66.4      | S. E.              | ..                | Ditto.             |
| 9     | 29.405     | 85.5         | 86.6    | 68.5      | S. E.              | ..                | Ditto.             |
| 10    | 29.383     | 87.0         | 87.0    | 67.0      | S. E.              | ..                | Ditto.             |
| 11    | 29.413     | 87.5         | 89.0    | 69.9      | W.                 | ..                | Ditto.             |
| 12    | 29.423     | 88.0         | 89.5    | 65.0      | N. W.              | ..                | Ditto.             |
| 13    | 29.443     | 85.0         | 85.0    | 71.0      | S. E.              | ..                | Ditto.             |
| 14    | 29.551     | 87.0         | 87.0    | 74.0      | E.                 | ..                | Ditto.             |
| 15    | 29.569     | 82.3         | 82.0    | 67.5      | E.                 | ..                | Ditto.             |
| 16    | 29.479     | 82.5         | 83.6    | 69.0      | E.                 | ..                | W. scattered.      |
| 17    | 29.505     | 84.0         | 85.5    | 68.5      | E.                 | ..                | Clear.             |
| 18    | 29.475     | 85.1         | 85.9    | 69.3      | S. E.              | ..                | Ditto.             |
| 19    | 29.359     | 85.4         | 86.0    | 65.5      | W.                 | ..                | Ditto.             |
| 20    | 29.325     | 80.0         | 80.2    | 60.5      | N. W.              | ..                | Ditto.             |
| 21    | 29.341     | 84.9         | 85.5    | 60.0      | N. W.              | ..                | Ditto.             |
| 22    | 29.455     | 86.0         | 87.0    | 60.0      | E.                 | ..                | Scattered.         |
| 23    | 29.468     | 86.5         | 87.2    | 61.0      | S. W.              | ..                | Clear.             |
| 24    | 29.279     | 86.9         | 87.5    | 64.0      | W.                 | ..                | Hazy.              |
| 25    | 29.357     | 79.3         | 80.0    | 55.0      | W.                 | ..                | Ditto.             |
| 26    | 29.389     | 79.2         | 80.4    | 57.9      | W.                 | ..                | Clear.             |
| 27    | 29.417     | 80.6         | 82.0    | 59.0      | W.                 | ..                | Ditto.             |
| 28    | 29.413     | 83.0         | 85.5    | 62.0      | W.                 | ..                | Ditto.             |
| 29    | 29.313     | 90.8         | 93.0    | 62.0      | E.                 | ..                | Ditto.             |
| 30    | 29.375     | 85.0         | 85.7    | 64.0      | W.                 | ..                | Ditto.             |
| 31    | 29.483     | 87.0         | 89.0    | 64.5      | W.                 | ..                | Ditto.             |
| Mean. | 29.459     | 83.5         | 84.5    | 63.7      |                    |                   |                    |

Barometer Observations corrected for Capillarity only.

Symbols. {  
 \ Cirrus.  
 / Cirro strata.  
 ~ Cumuli.  
 ~ Cumulo strata.  
 ~ Nimbi or Nimbus.

Note.—The dry bulb and maximum Register do not agree, the former always reads more than the latter. The average difference is 1.6.

*Meteorological Register kept at the Office of the Secretary to Government, N. W. P., Agra, for the month of March, 1856.*

| Observations at apparent Noon. |            |              |         |           |                    |                   |                    |
|--------------------------------|------------|--------------|---------|-----------|--------------------|-------------------|--------------------|
| Date.                          | Barometer. | Temperature. |         |           | Direction of Wind. | Quantity of Rain. | Aspect of the Sky. |
|                                |            | Of Mercury.  | Of Air. | Wet Bulb. |                    |                   |                    |
| 1                              | 29.639     | 80.5         | 82.5    | 59.5      | N. W.              | ..                | Clear.             |
| 2                              | 29.629     | 81.9         | 82.2    | 60.0      | S. W.              | ..                | ✓ scattered.       |
| 3                              | 29.599     | 82.0         | 83.0    | 61.0      | N. W.              | ..                | Clear.             |
| 4                              | 29.561     | 85.5         | 86.2    | 62.0      | W.                 | ..                | Ditto.             |
| 5                              | 29.543     | 86.8         | 86.7    | 63.8      | N. W.              | ..                | Ditto.             |
| 6                              | 29.525     | 88.3         | 90.0    | 64.5      | N. W.              | ..                | Ditto.             |
| 7                              | 29.483     | 88.7         | 88.5    | 65.0      | N. W.              | ..                | Ditto.             |
| 8                              | 29.449     | 89.9         | 89.5    | 67.0      |                    | ..                | Ditto.             |
| 9                              | 29.387     | 90.5         | 91.0    | 69.0      | S. E.              | ..                | Ditto.             |
| 10                             | 29.363     | 91.2         | 91.9    | 68.5      | S.                 | ..                | Ditto.             |
| 11                             | 29.393     | 93.0         | 94.5    | 70.1      | W.                 | ..                | Ditto.             |
| 12                             | 29.403     | 95.2         | 96.4    | 64.4      | N. W.              | ..                | Ditto.             |
| 13                             | 29.443     | 89.9         | 91.0    | 72.0      | S. E.              | ..                | Ditto.             |
| 14                             | 29.525     | 90.5         | 90.6    | 71.5      | E.                 | ..                | ✓ very few in zen  |
| 15                             | 29.521     | 86.5         | 87.4    | 71.0      | S. E.              | ..                | Clear.             |
| 16                             | 29.455     | 85.0         | 85.8    | 69.9      | E.                 | ..                | ✓ scattered.       |
| 17                             | 29.473     | 87.5         | 88.9    | 69.0      | S. E.              | ..                | Clear.             |
| 18                             | 29.427     | 90.8         | 90.9    | 69.5      | S. W.              | ..                | Ditto.             |
| 19                             | 29.347     | 90.2         | 90.5    | 66.5      | W.                 | ..                | Ditto.             |
| 20                             | 29.293     | 84.0         | 84.4    | 61.3      | N. W.              | ..                | Ditto.             |
| 21                             | 29.319     | 90.5         | 90.5    | 60.2      | N. W.              | ..                | Ditto.             |
| 22                             | 29.407     | 88.0         | 91.3    | 61.5      | E.                 | ..                | ✓ scattered        |
| 23                             | 29.451     | 89.7         | 89.9    | 62.5      | S. W.              | ..                | Clear.             |
| 24                             | 29.259     | 90.5         | 90.9    | 64.2      | W.                 | ..                | Hazy.              |
| 25                             | 29.347     | 84.0         | 84.0    | 56.0      | W.                 | ..                | Ditto.             |
| 26                             | 29.381     | 85.2         | 85.6    | 57.5      | W.                 | ..                | Clear.             |
| 27                             | 29.403     | 88.1         | 88.8    | 59.2      | W.                 | ..                | Ditto.             |
| 28                             | 29.403     | 89.0         | 89.4    | 62.5      | W.                 | ..                | Ditto.             |
| 29                             | 29.281     | 94.4         | 95.2    | 65.5      | E.                 | ..                | Ditto.             |
| 30                             | 29.355     | 88.0         | 88.5    | 65.0      | W.                 | ..                | Ditto.             |
| 31                             | 29.473     | 90.5         | 91.6    | 64.5      | W.                 | ..                | Ditto.             |
| Mean.                          | 29.435     | 88.2         | 88.9    | 64.4      |                    |                   |                    |

*Meteorological Register kept at the Office of the Secretary to Government, N. W. P., Agra, for the month of March, 1856.*

| Minimum pressure observed at 4 p. m. |            |              |         |           |                      |          |       |                    |                    |                   |
|--------------------------------------|------------|--------------|---------|-----------|----------------------|----------|-------|--------------------|--------------------|-------------------|
| Date.                                | Barometer. | Temperature. |         |           | Maximum and minimum. |          |       | Aspect of the Sky. | Direction of Wind. | Quantity of Rain. |
|                                      |            | Of Mercury.  | Of Air. | Wet Bulb. | Maximum.             | Minimum. | Mean. |                    |                    |                   |
| 1                                    | 29.563     | 85.8         | 85.8    | 63.2      | 85.8                 | 62.5     | 74.15 | Clear.             | W.                 | ..                |
| 2                                    | 29.549     | 86.5         | 86.0    | 63.0      | 86.0                 | 63.8     | 71.9  | ✓ scattered.       | N. W.              | ..                |
| 3                                    | 29.521     | 88.5         | 89.0    | 64.5      | 88.6                 | 64.9     | 76.75 | Clear.             | W.                 | ..                |
| 4                                    | 29.493     | 91.0         | 93.4    | 63.0      | 93.5                 | 66.5     | 80.0  | Ditto.             | N. W.              | ..                |
| 5                                    | 29.451     | 91.0         | 94.2    | 64.4      | 91.0                 | 68.0     | 81.0  | Ditto.             | N. W.              | ..                |
| 6                                    | 29.437     | 95.5         | 95.8    | 66.5      | 95.5                 | 69.5     | 82.5  | Ditto.             | N. W.              | ..                |
| 7                                    | 29.399     | 91.5         | 91.9    | 68.9      | 95.0                 | 72.0     | 83.5  | Ditto.             | N. W.              | ..                |
| 8                                    | 29.355     | 91.8         | 94.9    | 70.5      | 94.5                 | 68.5     | 81.5  | Ditto.             | S. W.              | ..                |
| 9                                    | 29.323     | 95.0         | 95.9    | 69.5      | 96.0                 | 70.5     | 83.25 | Ditto.             | S. E.              | ..                |
| 10                                   | 29.293     | 99.0         | 98.6    | 68.5      | 99.5                 | 75.9     | 87.7  | Ditto.             | W.                 | ..                |
| 11                                   | 29.335     | 100.5        | 101.0   | 70.0      | 100.5                | 76.8     | 88.65 | Ditto.             | N. W.              | ..                |
| 12                                   | 29.345     | 101.0        | 101.0   | 66.5      | 100.5                | 75.0     | 87.75 | Ditto.             | N. W.              | ..                |
| 13                                   | 29.367     | 94.8         | 91.2    | 71.2      | 95.0                 | 70.5     | 82.75 | Ditto.             | E.                 | ..                |
| 14                                   | 29.425     | 93.7         | 93.5    | 71.5      | 93.5                 | 70.5     | 82.0  | Ditto.             | S. E.              | ..                |
| 15                                   | 29.425     | 90.0         | 90.4    | 71.6      | 90.2                 | 70.5     | 80.35 | Ditto.             | E.                 | ..                |
| 16                                   | 29.379     | 89.5         | 90.5    | 71.5      | 90.5                 | 72.0     | 81.25 | ✓ scattered.       | S. E.              | ..                |
| 17                                   | 29.385     | 93.0         | 94.2    | 70.5      | 93.2                 | 71.5     | 82.35 | Clear.             | S. W.              | ..                |
| 18                                   | 29.521     | 96.8         | 96.6    | 68.9      | 97.0                 | 71.8     | 84.4  | Ditto.             | S. W.              | ..                |
| 19                                   | 29.251     | 93.4         | 93.0    | 67.0      | 93.5                 | 76.0     | 84.75 | Ditto.             | N. W.              | ..                |
| 20                                   | 29.239     | 89.9         | 89.5    | 62.5      | 89.8                 | 70.8     | 80.3  | Ditto.             | N. W.              | ..                |
| 21                                   | 29.267     | 95.5         | 95.5    | 62.5      | 95.5                 | 69.5     | 82.5  | Ditto.             | N. W.              | ..                |
| 22                                   | 29.347     | 91.2         | 91.3    | 63.9      | 91.5                 | 69.2     | 80.35 | ✓ scattered.       | E.                 | ..                |
| 23                                   | 29.405     | 97.2         | 97.0    | 65.0      | 97.5                 | 71.5     | 86.0  | Clear.             | S. W.              | ..                |
| 24                                   | 29.197     | 93.4         | 93.4    | 66.5      | 94.0                 | 74.5     | 81.25 | Hazy.              | W.                 | ..                |
| 25                                   | 29.283     | 89.1         | 89.0    | 58.0      | 89.0                 | 69.0     | 79.0  | Clear.             | W.                 | ..                |
| 26                                   | 29.327     | 91.0         | 90.5    | 60.0      | 91.0                 | 65.5     | 78.25 | Ditto.             | N. W.              | ..                |
| 27                                   | 29.337     | 93.0         | 93.0    | 62.6      | 92.5                 | 66.0     | 79.25 | Ditto.             | W.                 | ..                |
| 28                                   | 29.321     | 94.9         | 94.9    | 65.5      | 95.0                 | 65.8     | 80.4  | Ditto.             | W.                 | ..                |
| 29                                   | 29.207     | 96.0         | 95.8    | 68.0      | 97.0                 | 69.5     | 83.25 | ✓ scattered.       | W.                 | ..                |
| 30                                   | 29.321     | 92.0         | 92.2    | 67.1      | 92.5                 | 69.0     | 80.75 | Clear.             | W.                 | ..                |
| 31                                   | 29.413     | 95.0         | 95.     | 68.       | 95.5                 | 75.0     | 85.25 | Ditto.             | W.                 | ..                |
| Mean.                                | 29.363     | 93.5         | 93.5    | 66.4      | 93.6                 | 70.1     | 81.9  |                    |                    |                   |

*Meteorological Register kept at the Office of the Secretary to Government, N. W. P., Agra, for the month of April, 1856.*

Maximum pressure observed at 9.50 A. M.

| Date. | Barometer. | Temperature. |         |           | Direction of Wind. | Quantity of Rain. | Aspect of the Sky.  |
|-------|------------|--------------|---------|-----------|--------------------|-------------------|---------------------|
|       |            | Of Mercury.  | Of Air. | Wet Bulb. |                    |                   |                     |
| 1     | 29.335     | 89.0         | 91.0    | 66.0      | N. E.              | ..                | Clear.              |
| 2     | 29.497     | 88.0         | 89.4    | 65.5      | W.                 | ..                | Ditto.              |
| 3     | 29.393     | 88.1         | 90.0    | 66.0      | W.                 | ..                | ✓ few scattered.    |
| 4     | 29.455     | 85.5         | 85.0    | 66.4      | W.                 | ..                | ✓ all over.         |
| 5     | 29.491     | 87.8         | 88.0    | 64.0      | N. W.              | ..                | Clear.              |
| 6     | 29.363     | 94.5         | 95.7    | 71.0      | N.                 | ..                | Ditto.              |
| 7     | 29.335     | 94.3         | 95.0    | 69.5      | N.                 | ..                | Ditto.              |
| 8     | 29.253     | 95.2         | 96.2    | 70.0      | N. W.              | ..                | Ditto.              |
| 9     | 29.217     | 97.8         | 97.8    | 68.0      | S. W.              | ..                | Ditto.              |
| 10    | 29.343     | 90.2         | 90.8    | 64.0      | W.                 | ..                | Ditto.              |
| 11    | 29.405     | 88.0         | 90.0    | 63.0      | E.                 | ..                | Ditto.              |
| 12    | 29.377     | 89.0         | 91.0    | 60.8      | N.                 | ..                | Ditto.              |
| 13    | 29.385     | 88.8         | 90.5    | 60.5      | W.                 | ..                | Ditto.              |
| 14    | 29.305     | 88.5         | 89.5    | 61.6      | W.                 | ..                | Ditto.              |
| 15    | 29.285     | 87.5         | 89.4    | 62.0      | W.                 | ..                | ✓ scattered in zen. |
| 16    | 29.359     | 89.5         | 90.7    | 63.0      | W.                 | ..                | Clear.              |
| 17    | 29.399     | 95.8         | 97.2    | 67.8      | W.                 | ..                | Ditto.              |
| 18    | 29.373     | 100.0        | 100.5   | 70.8      | W.                 | ..                | Ditto.              |
| 19    | 29.361     | 97.8         | 99.2    | 69.0      | W.                 | ..                | Ditto.              |
| 20    | 29.401     | 96.5         | 97.8    | 70.8      | W.                 | ..                | Ditto.              |
| 21    | 29.279     | 96.          | 97.0    | 67.0      | W.                 | ..                | Ditto.              |
| 22    | 29.265     | 97.0         | 98.5    | 65.5      | N. W.              | ..                | Ditto.              |
| 23    | 29.307     | 97.0         | 98.4    | 66.5      | W.                 | ..                | Ditto.              |
| 24    | 29.309     | 97.8         | 99.5    | 69.5      | W.                 | ..                | ✓ scattered.        |
| 25    | 29.315     | 100.0        | 101.9   | 69.0      | N. E.              | ..                | Clear.              |
| 26    | 29.293     | 96.0         | 95.8    | 70.4      | E.                 | ..                | Ditto.              |
| 27    | 29.389     | 89.0         | 89.9    | 69.0      | E.                 | ..                | Ditto.              |
| 28    | 29.439     | 88.9         | 88.5    | 73.5      | N. E.              | ..                | Ditto.              |
| 29    | 29.409     | 92.5         | 92.8    | 75.5      | S. E.              | ..                | Hazy.               |
| 30    | 29.337     | 96.0         | 96.8    | 74.5      | S. E.              | ..                | Clear.              |
| M     | 29.359     | 92.7         | 93.8    | 67.3      |                    |                   |                     |

Barometer Observations corrected for Capillarity only.

Symbols. { \ Cirrus.  
 \ Cirro strata.  
 ^ Cumuli.  
 ~ Cumulo strati.  
 ~ Nimbi or Nimbus.

*Note.*—The dry bulb and maximum Register do not agree; the former always reads more than the latter. The average difference is 1.6.



*Meteorological Register kept at Agra.*

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*Meteorological Register kept at the Office of the Secretary to Government, N. W. P., Agra, for the month of April, 1856.*

Observations at apparent Noon.

| Date. | Barometer. | Temperature. |         |           | Direction of Wind. | Quantity of Rain. | Aspect of the Sky.  |
|-------|------------|--------------|---------|-----------|--------------------|-------------------|---------------------|
|       |            | Of Mercury.  | Of Air. | Wet Bulb. |                    |                   |                     |
| 1     | 29.517     | 92.4         | 93.0    | 67.1      | W.                 | ..                | Clear.              |
| 2     | 29.473     | 92.6         | 93.5    | 66.5      | W.                 | ..                | Scattered in zen.   |
| 3     | 29.371     | 93.9         | 94.8    | 66.9      | W.                 | ..                | ~ scattered.        |
| 4     | 29.427     | 91.0         | 92.0    | 67.8      | N. W.              | ..                | Clear.              |
| 5     | 29.455     | 92.0         | 92.5    | 65.0      | N. W.              | ..                | Ditto.              |
| 6     | 29.305     | 99.0         | 99.5    | 71.5      | N. W.              | ..                | Ditto.              |
| 7     | 29.329     | 99.2         | 99.9    | 70.0      | N.                 | ..                | Ditto.              |
| 8     | 29.205     | 100.0        | 101.    | 71.6      | ..                 | ..                | Ditto.              |
| 9     | 29.209     | 101.0        | 101.5   | 69.2      | N. W.              | ..                | Ditto.              |
| 10    | 29.323     | 96.9         | 97.5    | 63.5      | W.                 | ..                | Ditto.              |
| 11    | 29.385     | 93.5         | 94.0    | 63.6      | N.                 | ..                | Ditto.              |
| 12    | 29.355     | 93.7         | 95.8    | 63.0      | N.                 | ..                | Ditto.              |
| 13    | 29.453     | 94.5         | 95.0    | 61.0      | W.                 | ..                | Ditto.              |
| 14    | 29.279     | 93.0         | 94.0    | 62.5      | W.                 | ..                | Ditto.              |
| 15    | 29.283     | 92.3         | 93.0    | 63.5      | S. W.              | ..                | ~ scattered in zen. |
| 16    | 29.353     | 95.5         | 96.0    | 64.8      | W.                 | ..                | Clear.              |
| 17    | 29.377     | 99.8         | 101.0   | 69.0      | W.                 | ..                | Ditto.              |
| 18    | 29.345     | 104.0        | 105.0   | 70.0      | W.                 | ..                | Ditto.              |
| 19    | 29.331     | 103.0        | 103.5   | 69.9      | N. W.              | ..                | Ditto.              |
| 20    | 29.383     | 100.8        | 101.8   | 71.5      | W.                 | ..                | Ditto.              |
| 21    | 29.259     | 99.8         | 100.4   | 67.2      | W.                 | ..                | Ditto.              |
| 22    | 29.255     | 102.0        | 103.0   | 67.0      | N. W.              | ..                | Ditto.              |
| 23    | 29.291     | 102.0        | 103.5   | 67.6      | W.                 | ..                | Ditto.              |
| 24    | 29.297     | 102.8        | 103.4   | 70.0      | N. W.              | ..                | ~ scattered.        |
| 25    | 29.285     | 103.5        | 106.0   | 70.       | N. E.              | ..                | Clear.              |
| 26    | 29.277     | 99.0         | 99.5    | 75.5      | E.                 | ..                | Ditto.              |
| 27    | 29.351     | 92.0         | 92.8    | 70.5      | E.                 | ..                | Ditto.              |
| 28    | 29.399     | 91.5         | 92.0    | 73.0      | E.                 | ..                | ^ scattered in zen. |
| 29    | 29.385     | 94.9         | 95.2    | 76.3      | S. E.              | ..                | Hazy.               |
| 30    | 29.305     | 98.9         | 98.9    | 76.4      | S. E.              | ..                | ~ scattered.        |
| Mean. | 29.338     | 97.1         | 97.9    | 68.3      |                    |                   |                     |

*Meteorological Register kept at the Office of the Secretary to Government, N. W. P., Agra, for the month of April, 1856.*

Maximum pressure observed at 9.50 A. M.

| Date. | Barometer. | Temperature. |         |           | Direction of Wind. | Quantity of Rain. | Aspect of the Sky.  |
|-------|------------|--------------|---------|-----------|--------------------|-------------------|---------------------|
|       |            | Of Mercury.  | Of Air. | Wet Bulb. |                    |                   |                     |
| 1     | 29.335     | 89.0         | 91.0    | 66.0      | N. E.              | ..                | Clear.              |
| 2     | 29.497     | 88.0         | 89.4    | 65.5      | W.                 | ..                | Ditto.              |
| 3     | 29.393     | 88.1         | 90.0    | 66.0      | W.                 | ..                | ✓ few scattered.    |
| 4     | 29.455     | 85.5         | 85.0    | 66.4      | W.                 | ..                | ✓ all over.         |
| 5     | 29.491     | 87.8         | 88.0    | 64.0      | N. W.              | ..                | Clear.              |
| 6     | 29.363     | 94.5         | 95.7    | 71.0      | N.                 | ..                | Ditto.              |
| 7     | 29.335     | 94.3         | 95.0    | 69.5      | N.                 | ..                | Ditto.              |
| 8     | 29.253     | 95.2         | 96.2    | 70.0      | N. W.              | ..                | Ditto.              |
| 9     | 29.217     | 97.8         | 97.8    | 68.0      | S. W.              | ..                | Ditto.              |
| 10    | 29.343     | 90.2         | 90.8    | 64.0      | W.                 | ..                | Ditto.              |
| 11    | 29.405     | 88.0         | 90.0    | 63.0      | E.                 | ..                | Ditto.              |
| 12    | 29.377     | 89.0         | 91.0    | 60.8      | N.                 | ..                | Ditto.              |
| 13    | 29.385     | 88.8         | 90.5    | 60.5      | W.                 | ..                | Ditto.              |
| 14    | 29.305     | 88.5         | 89.5    | 61.6      | W.                 | ..                | Ditto.              |
| 15    | 29.285     | 87.5         | 89.4    | 62.0      | W.                 | ..                | ✓ scattered in zen. |
| 16    | 29.359     | 89.5         | 90.7    | 63.0      | W.                 | ..                | Clear.              |
| 17    | 29.399     | 95.8         | 97.2    | 67.8      | W.                 | ..                | Ditto.              |
| 18    | 29.373     | 100.0        | 100.5   | 70.8      | W.                 | ..                | Ditto.              |
| 19    | 29.361     | 97.8         | 99.2    | 69.0      | W.                 | ..                | Ditto.              |
| 20    | 29.401     | 96.5         | 97.8    | 70.8      | W.                 | ..                | Ditto.              |
| 21    | 29.279     | 96.          | 97.0    | 67.0      | W.                 | ..                | Ditto.              |
| 22    | 29.265     | 97.0         | 98.5    | 65.5      | N. W.              | ..                | Ditto.              |
| 23    | 29.307     | 97.0         | 98.4    | 66.5      | W.                 | ..                | Ditto.              |
| 24    | 29.309     | 97.8         | 99.5    | 69.5      | W.                 | ..                | ✓ scattered.        |
| 25    | 29.315     | 100.0        | 101.9   | 69.0      | N. E.              | ..                | Clear.              |
| 26    | 29.293     | 96.0         | 95.8    | 70.4      | E.                 | ..                | Ditto.              |
| 27    | 29.389     | 89.0         | 89.9    | 69.0      | E.                 | ..                | Ditto.              |
| 28    | 29.439     | 88.9         | 88.5    | 73.5      | N. E.              | ..                | Ditto.              |
| 29    | 29.409     | 92.5         | 92.8    | 75.5      | S. E.              | ..                | Hazy.               |
| 30    | 29.337     | 96.0         | 96.8    | 74.5      | S. E.              | ..                | Clear.              |
| M     | 29.359     | 92.7         | 93.8    | 67.3      |                    |                   |                     |

Barometer Observations corrected for Capillarity only.

Symbols. {  
 \ Cirrus.  
 ✓ Cirro strata.  
 ^ Cumuli.  
 ^ Cumulo strati.  
 ✓ Nimbi or Nimbus.

*Note.*—The dry bulb and maximum Register do not agree; the former always reads more than the latter. The average difference is 1.6.

*Meteorological Register kept at the Office of the Secretary to Government, N. W. P., Agra, for the month of April, 1856.*

| Observations at apparent Noon. |            |              |         |           |                    |                   |                     |
|--------------------------------|------------|--------------|---------|-----------|--------------------|-------------------|---------------------|
| Date.                          | Barometer. | Temperature. |         |           | Direction of Wind. | Quantity of Rain. | Aspect of the Sky.  |
|                                |            | Of Mercury.  | Of Air. | Wet Bulb. |                    |                   |                     |
| 1                              | 29.517     | 92.4         | 93.0    | 67.1      | W.                 | ..                | Clear.              |
| 2                              | 29.473     | 92.6         | 93.5    | 66.5      | W.                 | ..                | Scattered in zen.   |
| 3                              | 29.371     | 93.9         | 94.8    | 66.9      | W.                 | ..                | ~ scattered.        |
| 4                              | 29.427     | 91.0         | 92.0    | 67.8      | N. W.              | ..                | Clear.              |
| 5                              | 29.455     | 92.0         | 92.5    | 65.0      | N. W.              | ..                | Ditto.              |
| 6                              | 29.305     | 99.0         | 99.5    | 71.5      | N. W.              | ..                | Ditto.              |
| 7                              | 29.329     | 99.2         | 99.9    | 70.0      | N.                 | ..                | Ditto.              |
| 8                              | 29.205     | 100.0        | 101.    | 71.6      | ..                 | ..                | Ditto.              |
| 9                              | 29.209     | 101.0        | 101.5   | 69.2      | N. W.              | ..                | Ditto.              |
| 10                             | 29.323     | 96.9         | 97.5    | 63.5      | W.                 | ..                | Ditto.              |
| 11                             | 29.385     | 93.5         | 94.0    | 63.6      | N.                 | ..                | Ditto.              |
| 12                             | 29.355     | 93.7         | 95.8    | 63.0      | N.                 | ..                | Ditto.              |
| 13                             | 29.453     | 94.5         | 95.0    | 61.0      | W.                 | ..                | Ditto.              |
| 14                             | 29.279     | 93.0         | 94.0    | 62.5      | W.                 | ..                | Ditto.              |
| 15                             | 29.283     | 92.3         | 93.0    | 63.5      | S. W.              | ..                | ~ scattered in zen. |
| 16                             | 29.353     | 95.5         | 96.0    | 64.8      | W.                 | ..                | Clear.              |
| 17                             | 29.377     | 99.8         | 101.0   | 69.0      | W.                 | ..                | Ditto.              |
| 18                             | 29.345     | 104.0        | 105.0   | 70.0      | W.                 | ..                | Ditto.              |
| 19                             | 29.331     | 103.0        | 103.5   | 69.9      | N. W.              | ..                | Ditto.              |
| 20                             | 29.383     | 100.8        | 101.8   | 71.5      | W.                 | ..                | Ditto.              |
| 21                             | 29.259     | 99.8         | 100.4   | 67.2      | W.                 | ..                | Ditto.              |
| 22                             | 29.255     | 102.0        | 103.0   | 67.0      | N. W.              | ..                | Ditto.              |
| 23                             | 29.291     | 102.0        | 103.5   | 67.6      | W.                 | ..                | Ditto.              |
| 24                             | 29.297     | 102.8        | 103.4   | 70.0      | N. W.              | ..                | ~ scattered.        |
| 25                             | 29.285     | 103.5        | 106.0   | 70.       | N. E.              | ..                | Clear.              |
| 26                             | 29.277     | 99.0         | 99.5    | 75.5      | E.                 | ..                | Ditto.              |
| 27                             | 29.351     | 92.0         | 92.8    | 70.5      | E.                 | ..                | Ditto.              |
| 28                             | 29.399     | 91.5         | 92.0    | 73.0      | E.                 | ..                | ^ scattered in zen. |
| 29                             | 29.385     | 94.9         | 95.2    | 76.3      | S. E.              | ..                | Hazy.               |
| 30                             | 29.305     | 98.9         | 98.9    | 76.4      | S. E.              | ..                | ~ scattered.        |
| Mean.                          | 29.338     | 97.1         | 97.9    | 68.3      |                    |                   |                     |

*Meteorological Register kept at the Office of the Secretary to Government, N. W. P., Agra, for the month of April, 1856.*

Minimum pressure observed at 4 P. M.

| Date. | Barometer. | Temperature. |         |           | Maximum and Minimum. |          |       | Aspect of the Sky. | Direction of Wind. | Quantity of Rain. |
|-------|------------|--------------|---------|-----------|----------------------|----------|-------|--------------------|--------------------|-------------------|
|       |            | Of Mercury.  | Of Air. | Wet Bulb. | Maximum.             | Minimum. | Mean. |                    |                    |                   |
| 1     | 29.439     | 96.9         | 96.9    | 68.9      | 96.9                 | 79.0     | 87.95 | Clear.             | W.                 | ..                |
| 2     | 29.453     | 98.9         | 98.9    | 69.4      | 98.5                 | 79.0     | 88.75 | Ditto. [over.      | W.                 | ..                |
| 3     | 29.283     | 98.9         | 98.4    | 69.0      | 99.0                 | 71.0     | 86.5  | ~ scattered all    | W.                 | ..                |
| 4     | 29.365     | 96.5         | 96.5    | 67.1      | 96.0                 | 79.5     | 87.75 | Clear.             | N. W.              | ..                |
| 5     | 29.365     | 96.8         | 96.8    | 67.5      | 96.5                 | 79.0     | 87.75 | Ditto.             | N. W.              | ..                |
| 6     | 29.217     | 102.5        | 102.5   | 73.1      | 102.0                | 76.0     | 91.0  | Ditto.             | N. W.              | ..                |
| 7     | 29.243     | 104.6        | 104.0   | 73.0      | 104.0                | 76.5     | 90.25 | Ditto.             | N. W.              | ..                |
| 8     | 29.125     | 106.9        | 106.6   | 70.0      | 106.5                | 76.0     | 91.25 | Ditto.             | N. W.              | ..                |
| 9     | 29.167     | 106.5        | 106.5   | 72.1      | 106.5                | 84.0     | 95.25 | Ditto.             | N. W.              | ..                |
| 10    | 29.267     | 100.9        | 100.1   | 65.0      | 100.5                | 78.5     | 89.5  | Ditto.             | W.                 | ..                |
| 11    | 29.311     | 99.5         | 99.5    | 64.0      | 99.8                 | 73.0     | 86.4  | Ditto.             | W.                 | ..                |
| 12    | 29.275     | 98.9         | 99.6    | 64.7      | 99.2                 | 70.8     | 85.0  | Ditto.             | N. W.              | ..                |
| 13    | 29.285     | 97.8         | 97.5    | 64.0      | 97.5                 | 71.0     | 84.25 | Ditto.             | W.                 | ..                |
| 14    | 29.205     | 98.5         | 98.5    | 61.0      | 98.0                 | 73.0     | 85.5  | Ditto.             | W.                 | ..                |
| 15    | 29.217     | 99.0         | 99.0    | 65.5      | 98.8                 | 72.0     | 85.1  | Ditto.             | W.                 | ..                |
| 16    | 29.295     | 101.5        | 102.4   | 67.0      | 102.2                | 72.0     | 87.1  | Ditto.             | W.                 | ..                |
| 17    | 29.187     | 105.0        | 105.5   | 72.3      | 105.0                | 79.0     | 92.0  | Ditto.             | N. W.              | ..                |
| 18    | 29.263     | 108.5        | 109.5   | 70.5      | 109.2                | 82.5     | 95.85 | Ditto.             | W.                 | ..                |
| 19    | 29.255     | 107.0        | 107.0   | 72.5      | 109.0                | 82.5     | 95.75 | Ditto.             | N. W.              | ..                |
| 20    | 29.223     | 110.6        | 110.5   | 73.0      | 110.0                | 81.0     | 95.5  | Ditto.             | W.                 | ..                |
| 21    | 29.185     | 105.0        | 105.2   | 69.5      | 105.0                | 80.8     | 92.9  | Ditto.             | W.                 | ..                |
| 22    | 29.179     | 106.8        | 106.8   | 69.0      | 106.5                | 81.8     | 91.2  | Ditto.             | N. W.              | ..                |
| 23    | 29.205     | 108.0        | 109.2   | 70.1      | 108.5                | 83.0     | 95.75 | Ditto.             | ..                 | ..                |
| 24    | 29.229     | 109.2        | 109.5   | 69.5      | 109.0                | 83.5     | 96.25 | Ditto.             | W.                 | ..                |
| 25    | 29.175     | 108.9        | 108.5   | 73.6      | 108.5                | 83.5     | 96.0  | Ditto.             | N. E.              | ..                |
| 26    | 29.205     | 104.5        | 104.2   | 75.5      | 104.0                | 84.0     | 94.0  | Ditto.             | E.                 | ..                |
| 27    | 29.285     | 95.8         | 94.9    | 71.6      | 95.5                 | 79.0     | 87.25 | Ditto.             | E.                 | ..                |
| 28    | 29.305     | 96.0         | 96.2    | 74.5      | 96.0                 | 78.0     | 87.0  | Ditto.             | E.                 | ..                |
| 29    | 29.295     | 100.5        | 100.5   | 80.0      | 100.0                | 83.0     | 91.5  | Ditto.             | S. E.              | ..                |
| 30    | 29.189     | 104.0        | 104.0   | 76.5      | 104.0                | 84.0     | 94.0  | ~ scattered.       | S. E.              | ..                |
| Mean. | 29.256     | 102.4        | 102.1   | 70.1      | 102.4                | 78.6     | 90.5  |                    |                    |                   |

# JOURNAL

OF THE

# ASIATIC SOCIETY.

No. V. 1858.

*Comparative Vocabulary of the Languages of the broken Tribes of  
Nepál.—By B. H. HODGSON, Esq., B. C. S.*

(Continued from vol. xxvi. p. 522.)

## DECLENSION OF BÁHING PRONOUNS AND OF NOUNS.

### I.—Of Pronouns.

#### 1st Personal Pronoun.

1. Nom. I, Go.
2. Gen. Of me { Conjunct. { Disjunct.  
                  { Wa — my. { Wake — mine.
3. { Dat. { 'To me, } Go. No sign.  
   { Ac. { Me, }
4. Loc. { In me, } Wake gwáre (interior).  
          { Within me. }
5. Loc. { Into me, } Wake di (entering, resting in).  
          { In me, }
6. Abl. From me. Wake ding (removal).
7. All. Towards me, Wake la (nearing).
8. — From towards me, Wake lang (departing).
9. — Towards me, Wake taure (behaviour).
10. Soc. With me, { Wakenung } (society).  
                      { Gonung }
11. Priv. Without me, { Wake manthi } (privation).  
                          { Gomauthi }
12. Inst. By me, Go mi.
13. Loc. At, by me, Wa pumdi\* (proximity. II. pás).

#### Dual.

1. Gósi, incl. Gósúkú, excl.
2. { Conjunct. { Disjunct.  
   { Ysi, incl. { Ysike, incl.  
   { Wási, excl. { Wásike, excl.
3. Gósi, incl. Gósúkú, excl.

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\* See remark in sequel. Taure, gwáre and púm, as substantives or quasi such, naturally take the genitival pronoun; and perhaps also la and lang = *taraf* and *tarafae*: but not so mi, di and ding which seem to be sheer case signs.

4. Ísikegwáre, incl. Wásikegwáre, excl.
5. Ísike di, incl. Wásike di, excl.
6. Ísike ding, incl. Wásike ding, excl.
7. Ísike la, incl. Wásike la, excl.
8. Ísike lang, incl. Wásike lang, excl.
9. Gosi taure, incl. Gosuku taure, excl.
10. Gosi nung, incl. Gosuku nung, excl.
11. Gosi manthi, incl. Gosuku manthi, excl.
12. Gosi mi, incl. Gosuku mi, excl.
13. { Isi- } pumdi, { incl.  
Wasi- } excl.

*Plural.*

1. Gó-i, incl. Góku, excl.
2. { Conjunct. } Disjunct.  
Ike, incl. { Ikke, incl.  
Wake, excl. { Wakke, excl.
3. Gó-i, incl. Goku, excl.
4. Íkegwáre, incl. Wakegwáre, excl.
5. Ike di, incl. Wake di, excl.
6. Ike ding, incl. Wake ding, excl.
7. Ike lá, incl. Wake lá, excl.
8. Ike lang, incl. Wáke lang, excl.
9. Ike taure, incl. Wake taure, excl.
10. Gó-i nung, incl. Goku nung, excl.
11. Gó-i manthi, incl. Goku manthi, excl.
12. Gó-i mi, incl. Goku mi, excl.
13. { Ike- } pumdi, { incl.  
Wake- } excl.

*2nd Pronoun.*

1. Ga.
2. { Conjunct. } Disjunct.  
I. { Ike.
3. Gá. No sign.
4. Ike gwáre.
5. Ike di.
6. Ike ding.
7. Ike la.
8. Ike lang.
9. Ike taure.
10. Ga nung.
11. Ga manthi.
12. Ga mi.
13. I pumdi.

*Dual.*

1. Gasi.
2. { Conjunct. } Disjunct.  
{ Ísi. } Ísike.
3. Gasi. No sign.
4. Ísi gwáre or Ísike gwáre.
5. Ísike di.
6. Ísike ding.
7. Ísike la.
8. Ísike lang.
9. Ísi taure or Ísike taure.
10. Gasi nung.
11. Gasi manthi.

12. Gasi mi.

13. Ísi pumdi.

*Plural.*

1. Gani.
2. { Conjunct. } Disjunct.  
{ Íni. } Ínike.
3. Gani. No sign.
4. Íni Gwáre.
5. Ínike di.
6. Ínike ding.
7. Ínike la.
8. Ínike lang.
9. Íni taure.
10. Gani nung.
11. Gani manthi.
12. Gani mi.
13. Íni pumdi.

*3rd Personal.*

1. Harem (all genders).
2. { Conjunct. } Disjunct.  
{ Á. } Áke.  
{ Haremke, common.
3. Harem. No sign.
4. { Ágwáre or Ákegwáre.  
{ Haremke gwáre.
5. Ákedi. Harem di.
6. { Ákeding.  
{ Haremke ding.

7. { Ake la.  
Haremke la.
8. { Ake lang.  
Haremke lang.
9. { Ake taure,  
Haremke taure.
10. Harem nung.
11. Harem manthi.
12. Harem mi.
13. Apumdi. Haremke pumdi.

*Dual.*

1. Harem dausi.
2. { Conjunct. { Disjunct.  
Asi. Asi.  
Harem dausike, common.
3. Harem dausi. No sign.
4. { Asi gwáre or Asi ke gwáre.  
Harem dausike gwáre.
5. Asi ke di. Harem dausike di.
6. Asi ke ding. Harem dausike ding.
7. Asi ke la. Harem dausike la.
8. Asi ke lang. Harem dausike lang.
9. Asi ke taure. Harem dausike taure.
10. Harem dausi nung.
11. Harem dausi manthi.
12. Harem dausi mi.
13. { Asi pumdi.  
Harem dausike pumdi.

*Plural.*

1. Harem dau.
2. { Conjunct. { Disjunct.  
Ani. Anike.  
Harem dauke, common.
3. Harem dau. No sign.
4. { Ani gware. Anike gware.  
Harem dauke gware.
5. Anike di. Harem dauke di.
6. Anike ding. Harem dauke ding.
7. Anike la. Harem dauke la.
8. Anike lang. Harem dauke lang.
9. Anike taure. Harem dauke taure.
10. Harem dau nung.
11. Harem dau manthi.
12. Harem dau mi.
13. { Ani pumdi.  
Harem dauke pumdi.

*Near demonstrative. This*

1. Yam\* (all genders).
2. { Conjunct { Disjunct.  
Yamke. Yamke meke.
3. Yam. No sign.

4. Yamke gware or Yam gware.
5. Yam di.
6. Yam ding.
7. Yamke la. Yam la.
8. Yamke lang. Yam lang.
9. Yamke taure. Yam taure.
10. Yam nung.
11. Yam manthi.
12. Yam mi.
13. Yamke pumdi.

*Dual.*

1. Yam dausi.
2. { Yam dausike.  
Conj. and Disj.
3. Yam dausi. No sign.
4. Yam dausike gware.
5. Yam dausi di.
6. Yam dausi ding.
7. Yam dausike la.
8. Yam dausike lang.
9. Yam dausike taure.
10. Yam dausi nung.
11. Yam dausi manthi.
12. Yam dausi mi.
13. Yam dausike pumdi.

*Plural.*

1. Yam dau.
2. { Yam dauke.  
Conj. and disj.
3. Yam dau. No sign.
4. { Yam dau gware.  
Yam dauke gware.
5. Yam dau di.
6. Yam dau ding.
7. Yam dau (ke) la.
8. Yam dau (ke) lang.
9. Yam dauke taure.
10. Yam dau nung.
11. Yam dau manthi.
12. Yam dau mi.
13. Yam dauke pumdi.

*Remote Demonstrative.*

1. Myam† (all genders).
2. { Myamke, conj.  
Myamk meke, disj.
4. Myam. No sign.
4. Myamke gwáre.
5. Myam di.
6. Myam ding.
7. Myamke la.
8. Myamke lang.

\* Yam or yem and so Myam or myem. All vowel sounds are extremely vague. G-yem, the relative, is evidently a derivative of yem.

† Myam or Myem.

9. Myamke taure.
10. Myam nung.
11. Myam manthi.
12. Myam mi.
13. Myamke pumdi.

*Dual.*

1. Myam dausi.
2. { Myam dausike.  
  { Conj. and disj. &c. like singular.

*Plural.*

1. Myam dau.
2. { Myam dauke.  
  { Conj. and disj. &c. nt supra.

*Interrogative and Distributive.*

Who? What person? Any one; m.  
and f. Substantival and adjectival.\*

1. Sú.
2. { Suke.  
  { Conj. and disj. or  
  { Sukemeke, disj.
3. Su. No sign.
4. Su gware.
5. Su di.
6. Su ding.
7. Sula. Sukela.
8. Su lang. Suke lang.
9. Su taure. Suke taure.
10. Su nung.
11. Su manthi.
12. Su mi.
13. { Su á pumdi.  
  { Suke pumdi.

*Dual.*

1. Su dausi.
2. Su dausike, &c.

*Plural.*

1. Su dau.
2. Su dauke, &c.

*Interrogative and Distributive Neuter.*

What? What thing? Any thing; †  
Substantival and adjectival.

1. Mára.
2. Máruke, &c.

*Dual.*

1. Mára dausi.
2. Mára dausike, &c.

*Plural.*

1. Mára dau.
2. Mára dauke, &c.

*Relative of all genders.*

He, she, who; that, which: substan-  
tival and adjectival.‡

1. Gyem.
2. Gyemke.

*Dual.*

1. Gyem dausi.
2. Gyem dausike, &c.

*Plural.*

1. Gyem dau.
2. Gyem dauke.

*Reflective. Self.*

1. Daubo or Dwábo.
2. Dwábo ke.
3. Dwábo. No sign.
4. Dwábo gware.
5. Dwábo di.
6. Dwábo ding.
7. Dwábo la.
8. Dwábo lang.
9. Dwábo taure.
10. Dwábo nung.
11. Dwábo manthi.
12. Dwábo mi.
13. Dwábo pumdi.

Dual and plural as before.

So also are declined Hwappe or Haup-  
pe = all and every; Gisko = how many,  
and as many; Metti = so many; Dú-  
kono = many and much; Dékho = a  
few, a little; Gisko = whoever and  
whatever; Kwánguáme = other, another,  
Myem = the same (see *that*); Nimphe  
= both; and in a word, all primitive or  
personal pronouns. Possessive pronouns  
are formed from the genitives, except in  
the case of the 3 leading pronouns.  
I, thou, he or she or it, each of these  
has two distinct forms quite separate  
from the personals—thus go has wa =  
mei and meus, in English, of me and  
my; and wake = English mine. So  
also ga, the 2nd pronoun has í and íke,  
and haem the 3rd has á and áke. The  
first of these two possessive or genitive  
forms are pronominal adjectives or ra-  
ther adjuncts of nouns and verbs (and  
adverbs also) by prefix and suffix respec-  
tively. The second are pronouns pro-

\* Equal kon and kói. Hindi and Urdu.

† Equal kya and kuech.

‡ Equal jón and jó. The correlative is Myam = Tón and Tó. It is rarely  
used because of the relative character of the participles.



per, like mine, thine, in English.\* The former are indeclinable: the latter, are declinable, like all other proper possessives, though with some confusion originating in the imperfect development of the inflective element, its frequent coincidence with the genitive sign, and the variableness of that sign.

However, the case signs generally and their mode of annexation being uniform, out of this essentially one declension order is obtained, despite the disturbing causes adverted to. I give here as a sample of the possessives.

Dauboke = own.

1. Dauboke.
2. { Caret?
- { Dwabokeke.†
3. Dauboke.
4. Dauboke gware.
5. Dauboke di.
6. Dauboke ding.
7. Dauboke la.
8. Dauboke lang.
9. Dauboke taure.
10. Dauboke nung.
11. Dauboke manthi.
12. Dauboke mi.
13. { Dauboke pumdi or Daubo á
- { pumdi.

Daubo -- áp; dauboke = apna. *Apnaka* can only be separately expressed by the cacophonous iteration of the guttural. Nor is this defect remedied by the use of the conjunct pronouns, wá, í, á; for wadwábo myself gives wádwbóke, of myself and my own; and idwábo, thyself gives idwbóke of thyself or thy own. See more on the genitive in the sequel.

## II.—Declension of Nouns.

1st.—Substantives proper.

Wamsa, a man, m.

1. Wainsa.
2. { Wainsake, disjunct, or
- { Wamsa á, conjunct.
3. Wamsa. No sign.
4. { Wamsa gware or
- { Wamsa á gware.
5. Wamsa di.
6. Wamsa ding.
7. Wamsa la.
8. Wamsa lang.
9. Wamsa á taure.
10. Wamsa nung.
11. Wamsa manthi.
12. Wamsa mi.
13. Wamsa á pumdi.

*Dual.*

1. Wainsa dausi.
2. { Wainsa dausike, disjunct.
- { Wamsa ási, conjunct.
3. Wamsa dausi
4. { Wamsa dausike gware.
- { Wamsa dausi ási gware.
5. Wamsa dausi di.
6. Wamsa dausi ding.
7. Wamsa dausi la.
8. Wamsa dausi lang.
9. { Wamsa dausike taure.
- { Wamsa dausi ási taure.
10. Wamsa dausi nung.
11. Wamsa dausi manthi.
12. Wamsa dausi mi.
13. Wamsa dausi ási pumdi.

*Plural.*

1. Wamsa dau.
2. { Wamsa dauke, disjunct.
- { Wamsa dau áni,† conjunct.
3. Wamsa dau. No sign.

\* The formation of these from the *my, thy*, series by the addition of "ki" or "ke" is quite Turkic. *Wa* = *my*, *wá-ke* = *mine*. So *Turki Benim* = *my*, *benim-ki* = *mine*. Only Báking uses the conjunct form merely (quasi *in, mki*) of the pronoun which in that tongue moreover is a prefix, in *Turki* an affix, of nouns.

† Compare *uskaka* in *Hindi* and *Urdu*.

‡ *Á*, *ási* and *áni* are the conjunct forms attaching to nominative which follows genitive, thus *Wamsa dau áni ming*, or *wamsa dauke áni ming* = the wife of several men, literally men (of) their wife or woman. The use of the same form in the next case proves *gware* to be a substantive used as a preposition, like *bhetar* in *Hindi*: *áni gware* = their interior.

4. { Wainsa dauke gware.
5. { Wainsa dau áni gware.
6. Wainsa dau di.
7. Wainsa dau ding.
8. Wainsa dau la.
9. Wainsa dau lang.
9. { Wainsa dau ke taure or
- { Wainsa dau áni taure.
10. Wainsa dau nung.
11. Wainsa dau manthi.
12. Wainsa dau mi.
13. Wainsa dau áni pumdi.

So also is declined Mincha, a woman, and ming a wife, and all feminine nouns.

#### *Declension of a Neuter.*

##### *Substantive.*

Grokso, a thing.

1. Grokso,
2. { Groksoke, disjunct.
- { Grokso-á, conjunct.
3. Grokso.
4. Grokso á gware.
5. Grokso di.
6. Grokso ding.
7. Grokso la.
8. Grokso lang.
9. Grokso á taure.
10. Grokso nung.
11. Grokso manthi.
12. Grokso mi.
13. Grokso á pumdi.

##### *Dual.*

1. Grokso dausi.
2. { Grokso dausike, disjunct.
- { Grokso dausi áni, conjunct.
3. Grokso dausi, &c.

##### *Plural.*

1. Grokso dau.
2. { Grokso dauke or
- { Grokso dau áni, &c.

It results from the above that there is but one declension; that gender has no grammatical expression; that number, like case, is expressed by separate postpositions, number going first; that all nouns and pronouns take the signs of number, neuters as well as others; that some of the signs of case are still significant (gware the interior; taure, the top; pum, the side); that *ke* is the general genitive sign, but rarely used save when the noun stands alone, as in

reply to a question, thus, whose?—the man's, is suke, wainsake; that when two substantives come together, the former is the genitive and has properly no sign (no qualitative ever has), though the "ke" be sometimes superadded to the special denotator which is á, the 3rd pronoun (his, her, its), or dim whose sense is, in of. Dim expresses a relation of locality or inness (what is contained); á, almost all other sorts of relation. Dim is used conjunctively and disjunctively, as, of where the tooth? gyelame khleu: of the mouth, shrodím. Both precede the second substantive or nominative—thus wainsa á ming = the man's name; grokso á syanda = the thing's sound; rú dim khán = vegetables of the garden; bazar dim shéri = bazar rice or rice of the bazar; pu dim pwáku, water of the cup, so that this latter may be called the general way of expressing the relation of two substantives which are both named—the former the general way of expressing relation when the qualitative noun only is named, for genitives are all qualitatives, e. g. singke = wooden; ramke = bodily; lastly, that pronouns and nouns are declined throughout and in all respects in the same way; there being no difference whatever between them. As to the genitive relation it should be further noted that the first of two substantives is by position alone a genitive; that very close connexion and dependance is expressed by á, e. g. the calf of the cow, gai á támi; that "ke" can be used with á, as wainsake á ming, the man's his name; that where *ke* is formative, as singke, = wooden, from sing, wood, its conjunctive use is indispensable like that of the ba and na, the participial formatives; thus syelke bétho, the iron blade,\* neubá muryu, the or a good man (properly, the man who is good) from syel = iron (subs.) and neu, to be good. Observe further that the topical sign di, both asks and answers, as, ru dim khán, garden vegetables; and, of where? the garden's gyélam (or gyélame), rúdim.

In this latter instance we may observe

\* Observe that the iron of the blade is bétho á syel or betho ke syel. But the point or haft of the blade is necessarily bétho á juju and betho á rising.

that, *gyéla* being where, the final *m* or *me* of *gyélam*, *gyélame*, has, in respect of adverbs, a genitival force and so in *di-m*, of *in*; and in qualitives we constantly find a similar termination (*bubum* = white; *lalam* = red; *Kwágnam* = other &c.), so that the *m* final is shown to be generally possessive; and more especially as its iteration (*bubumme* = the white one; *lalamme* = the red one; *kwag-namme* = the other one) expresses the disjunct form of the same relation. Thus, which one will you have? the red one or the green, *Agyeme blávi*, *lalamme ki gígimme*, a sample wherein the possessive *á* is welded to the relative pronoun, *gyem*. By turning to the participles it will be seen that all those which have not a sign of their own (*ba* or

*na*) are made participles by the annexation of the *m* or *me* particle. This is in fact the general attributive affix, and its suffixure transforms all qualitives (including adverbs) into substantives or words used substantively, like the *hma* affix of Newari and like also the Dravirian *van*, *val*, which seem to me to be the unquestionable prototypes of the Prakritic, *wan*, *wal*, *war*, (*Gaon-wár*, *Sheto-wala*, *Gári wán*. *Marne wala*, &c.) I subjoin a few comparative samples drawn from Báking and Newári, which will also show that nearly any word in these tongues can be used substantively, and that all qualitives, in particular, can by the appropriate affix be made substantival, e. g. *singke*, wooden; *sing-keme*, the wooden one.

| <i>English.</i>                                         | <i>Báing.</i>                                 | <i>Nerári.</i>                                 | <i>Hindi.</i>                               |
|---------------------------------------------------------|-----------------------------------------------|------------------------------------------------|---------------------------------------------|
| 1. The one                                              | { Kwong-nimame, m. n.<br>Wake-me, m. n.       | 1. { Chha-hma, m. f.<br>Chha-gu, n.            | 1. { Carat.                                 |
| 2. Mine or my one                                       | { Wake-nimame, f.<br>Kyakya-me, m. n.         | 2. { Ji-hma, m. f.<br>Ji-gu, n.                | 2. { Mera wala, m. n.<br>Meri wali, f.      |
| 3. The black                                            | { Kyakya-nimame, f.<br>Teupba-me, m. f.       | 3. { Hyákya-hma, m. f.<br>Hyaku-gu, n.         | 3. { Kila wala, m. n.<br>Kali wali, f.      |
| 4. The striker. The striking<br>one or one that strikes | { Teupba-nimame, f.<br>Teupcho-me, n.         | 4. { Da-hma, m. f.<br>Da-gu, n.                | 4. { Kutne wala, m. n.<br>Kutne wali, f.    |
| 5. The wooden one                                       | { Singke-me, m. n.<br>Singke-nimame, f.       | 5. { Sinya-hma, m. f.<br>Sinya-gu, n.          | 5. { Kath wala, m. n.<br>Kath wali, f.      |
| 6. The anterior one                                     | { Gualla-me, m. n.<br>Gualla-nimame, f.       | 6. { Nhápaya-hma, m. f.<br>Nhápaya-gu, n.      | 6. { Age wala, m. n.<br>Age wali, f.        |
| 7. The posterior one                                    | { Nothia-me, m. n.<br>Nothia-nimame, f.       | 7. { Lappaya-hma, m. f.<br>Lappaya-gu, n.      | 7. { Piche wala, m. n.<br>Piche wali, f.    |
| 8. The here one                                         | { Eke-me, m. n.<br>Eke-nimame, f.             | 8. { Thanaya-hma, m. f.<br>Thanaya-gu, n.      | 8. { Ihan wala, m. n.<br>Ihan wali, f.      |
| 9. The there one                                        | { Mcke-me, m. n.<br>Mcke-nimame, f.           | 9. { Anaya-hma, m. f.<br>Anaya-gu, n.          | 9. { Uhan wala, m. n.<br>Uhan wali, f.      |
| 10. The to-day's one                                    | { Ana-nimame, f.<br>Piba-me, m. n.            | 10. { Thá wúnya-hma, m. f.<br>Thá wúnya-gu, n. | 10. { Aj wala, m. n.<br>Aj wali, f.         |
| 11. The comer, the coming<br>one                        | { Piba-nimame, f.<br>Wainsákho-me, m. n.      | 11. { Wo-bma, m. f.<br>Wo-gu, n.               | 11. { Ane wala, m. n.<br>Ane wali, f.       |
| 12. The manlike one                                     | { Wainsákho-nimame, f.<br>Wausuke-me, m. n.   | 12. { Mjangu-hma, m. f.<br>Mjangu-gu, n.       | 12. { Mardsa wala, m.<br>Mardsa wali, f.    |
| 13. The masculine one                                   | { Wausuke-nimame, f.<br>Dheptecha-me, m. n.   | 13. { Mjanga-hma, m. f.<br>Mjanga-gu, n.       | 13. { Mardana wala, m.<br>Mardana wali, f.  |
| 14. The lowland (being) one                             | { Dheptecha-nimame, f.<br>Syertecha-me, m. n. | 14. { Kobiya-hma, m. f.<br>Kobiya-gu, n.       | 14. { Madhes wala, m. n.<br>Madhes wali, f. |
| 15. The highland (being) one                            | { Syertecha-nimame, f.                        | 15. { Choya-hma, m. f.<br>Choya-gu, n.         | 15. { Parbat wala, m. n.<br>Parbat wali, f. |

| <i>English.</i>             | <i>Bikini.</i>                                                                        | <i>Newari.</i>                                                                               | <i>Hindi.</i>                                                                |
|-----------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
| 16. The handsome one        | { Rimba-me, m. n.<br>Rimsoipa-me, m.<br>Rimsoingma-me, f. }                           | 16. { Bangla-hma, m. f.<br>Bangla-gu, n. }                                                   | 16. { Sunder wala, m.<br>Sunder wali, f. }                                   |
| 17. The young one           | { Bebacha-me, m.<br>Bebacha nimame, f. }                                              | 17. { Mochacha-hma.<br>Mochacha gu. }                                                        | 17. { Chota wala, m. n.<br>Choti wali, f. }                                  |
| 18. The adult one           | { Swalocha-me, m.<br>Swalochame, f. }                                                 | 18. { Lyávehma-hma, m.<br>Lyávehma, f. }                                                     | 18. { Siyán wala, m.<br>Siyán wali, f. }                                     |
| 19. The old one             | { Gnáwame, m.<br>Gnámi-me, f. }                                                       | 19. { Jyatha-hma, m.<br>Jyáthi-hma, f. }                                                     | 19. { Budha wala.<br>Budhi wali, f. }                                        |
| 20. The Tibetan one (being) | { Leucha-me, m.<br>Leucha nimame, f. }                                                | 20. { Sanya-hma, m. f. }                                                                     | 20. { Bhot wala, m. n.<br>Bhot wali, f. }                                    |
| 21. Tibetan one (thing)     | { Leucha dyaldun-me, n. }                                                             | 21. { Sanya-gu, n. }                                                                         | 21. { Dhotka wala. }                                                         |
| 22. The household one       | { Khyimcha-me, m.<br>Khyimcha nimame, f. }                                            | 22. { Chhenya-hma, m. f.<br>Chhenya-gu, n. }                                                 | 22. { Gharwala, m. n.<br>Ghar wali, f. }                                     |
| 23. The wild one            | { Sabalacha-me, m. n.<br>Sabalacha nimame, f. }                                       | 23. { Gunya-hma, m. f.<br>Gunya-gu, n. }                                                     | 23. { Jangal walā, m.<br>Jangal wali, f. }                                   |
| 24. The good one            | { Neuba-me, m. n.<br>Neuba-nimame, f. }                                               | 24. { Bhing-hma, m. f.<br>Bhing-gu, n. }                                                     | 24. { Achha wala, m. n.<br>Acchi wali, f. }                                  |
| 25. The white one           | { Babu jokpa-me, m.<br>Babu jongma-me, f. or<br>Bubun-me, m. n.<br>Bubun nimame, f. } | 25. { Toyu-hma, m. f.<br>Toyu-gu, n. }                                                       | 25. { Shéto wala, m. n.<br>Shéti wali, f. }                                  |
| 26. The bowman's            | { Lichake-me, m.<br>Licha nimakeme, f. }                                              | 26. { Lipajonghmaaya-hma, m. f.<br>Lipajonghmaaya-gu, n. }                                   | 26. { Dhanuk walaka, m.<br>Dhanuk walika, f. }                               |
| 27. The son-in-law's        | { Dyel chake-me, m.<br>Dyel mikeme, f. }                                              | 27. { Jichaya-hma, m. f.<br>Jichaya-gu, n.<br>Bomumochaya-hma, m. f.<br>Bomumochaya-gu, n. } | 27. { Dámád wala, m.<br>Dámád wali, f.<br>Patho wala, m.<br>Patho wali, f. } |

*Remark.*—The above list affords, it will be seen, collateral information as to the formation of gender in qualitives used substantivally. It also shows that the formative suffix *cha* is apt to be equivalent for the suffix, *me*, *m*; and as *cha* still leaves a substantival word (e. g. *Khyim-cha* = householder; *Lí-cha* = bowman) the genitival sign *ke* is often introduced before final *me*, to express possessiveness, as, whose bow is that? the bowman's, *suke lí, líchakeme*. But *Lícha* being bowman, *líchame* may be used for bowman's. *Newári* avoids all vagueness by its *hma* and *gu* signs, repeated to ties quoties with the genitive sign *ya*, e. g. *Ji-hma*, mine, *m*. and *f*. *Ji-gu*, mine, *n*. *Ji hma ya hma*, *Ji hma ya gu*, *Ji hma ya hma ya*, *Ji hma ya gu ya*, *Ji gu ya hma ya*, *Ji gu ya gu ya*, &c. express any number of variations in the possession of beings and things: and so also in all qualitives used substantivally, thus, *toyu hma ya hma*, the white man's animal, *toyu hma ya gu*, the white man's thing, *toyu hma ya gu ya*, of the white man's thing, &c. Compare *Bahing khyim-cha-me* with *Newári Chhen-ya hma* and it will be seen that *cha* = *ya* has a quasi adjectival force though *khyimcha* mean house-holder. Such vagueness is normal.

#### CLASSIFICATION OF BAHING VERBS.

I.—Transitives in “*wo*.” Infinitive *Bla-cho*, to take. Imperative *blawo*, take it.

| Indicative active, Sing. number. |                      | Indicative passive, Sing. number. |                   | Causal imperative.    |
|----------------------------------|----------------------|-----------------------------------|-------------------|-----------------------|
| Present.                         | Preterite.           | Present.                          | Preterite.        |                       |
| 1. <i>Bla-gna</i> .              | 1. <i>Blaptong</i> . | 1. <i>Blayi (i)</i> .             | 1. <i>Blati</i> . | <i>Bla-páto</i> , tr. |
| 2. <i>Blayi (i)</i> .            | 2. <i>Blapteu</i> .  | 2. <i>Blaye (e)</i> .             | 2. <i>Blate</i> . | <i>Bla paso</i> , r.  |
| 3. <i>Blawa</i> .                | 3. <i>Blapta</i> .   | 3. <i>Blawa</i> .                 | 3. <i>Blata</i> . | <i>Bla-payi</i> , p.* |

Thus are conjugated *Méwo*, to vomit. *Cheuwo*, to grill. *Gíwo*, to give. *Séwo*, to saw. *Chwéwo*, to burn corpse. *Bráwo*, to scatter. *Táwo*, to get or find. *Jáwo* and *Báwo*, to eat. *Khíwo*, to quarrel with. *Kúwo*, to steal. *Kíwo*, to cook. *Páwo*, to do. *Leuwo*, to kiss (coitus). *Síwo*, to seize. *Téwo*, to spit on. *Mówo*, to fight. *Wódipa-wo*, to assay and all compounds of like kind, i. e. of a noun and the verb to do or make.

Intransitives in “*wo*.” Infinitive *Pícho*, to come. Imperative *Píwo*, come.

|                       |                |   |   |                       |
|-----------------------|----------------|---|---|-----------------------|
| 1. <i>Pí-gná</i> .    | <i>Pí-ti</i> . | ” | ” | <i>Pí-pato</i> , tr.  |
| 2. <i>Pí-yó (e)</i> . | <i>Pí-té</i> . | ” | ” | <i>Pí-paso</i> , ref. |
| 3. <i>Pí</i> .        | <i>Pí-tá</i> . | ” | ” | <i>Pí-payi</i> , pas. |

Thus are conjugated *Ráwo*, to come. *Glewo*, to be hot. *Hówo*, to be lighted. *Káwo*, to be bitter. *Láwo* and *Díwo*, to go. *Kúwo*, to come up (slope). *Yúwo*, to come down (slope). *Khíwo*, to tremble. *Neuwo*, to be good. *Deuwo*, to be reconciled. *Shéwo*, to decrease or decay. *Syé neuwo*, to be fat. *Bhlúwo*, to slip or slide down. *Shúwo*, to itch. *Jíwo*, to be ripe, &c.

II.—Transitives in “*gno*.” Infinitive *Kwócho*, to see. Imperative *Kwógno*, see it.

|                     |                   |                         |                 |                                   |
|---------------------|-------------------|-------------------------|-----------------|-----------------------------------|
| 1. <i>Kwó-gnú</i> . | <i>Kwó-tóng</i> . | 1. <i>Kwó-yí (i)</i> .  | <i>Kwó-tí</i> . | <i>Kwó-pa-to</i> , tr.            |
| 2. <i>Kwó-gní</i> . | <i>Kwó-t-ou</i> . | 2. <i>Kwó-gnú (é)</i> . | <i>Kwó-té</i> . | <i>Kwó-pa-so</i> refl. or middle. |
| 3. <i>Kwó</i> .     | <i>Kwó-tá</i> .   | 3. <i>Kwó</i> .         | <i>Kwó-ta</i> . | <i>Kwó-pa-yi</i> , pas.           |

\* The causal forms are the same throughout; *pato*, following the mutable transitives in “*to*,” *paso*, all intransitives whatever in “*so*,” and *páyí* (*pá-i*) all possessives in *i. yí* for euphony.

This classification rests on the Indicative singular. The infinitive and imperative and causal are given chiefly as clues to the root and to the euphonic changes. The form of the classification is throughout the same, 1, 2, 3 refer to the three persons.

Thus are conjugated sô-gno, to tell. Lé-gno, to sell. Tú-gno, to drink (water). Chô-gno, to cultivate and to pay debt. Phî-gno, to send, &c.

Intransitives in "gno." Infinitive, Glwau-cho, to win. Imperative, Glwau-gno, win.

| <i>Indicative active, sing. number.</i> |                   | <i>Indicative passive, sing. number.</i> |                   | <i>Causal.</i>     |
|-----------------------------------------|-------------------|------------------------------------------|-------------------|--------------------|
| <i>Present.</i>                         | <i>Preterite.</i> | <i>Present.</i>                          | <i>Preterite.</i> | <i>Imperative.</i> |
| 1. Glwau-gna.                           | Glwau-ti.         | "                                        | "                 | Glwau-pa-to, tr.   |
| 2. Glwau-gne.                           | Glwau-te.         | "                                        | "                 | Glwau-pa-so, refl. |
| 3. Glwau.                               | Glwau-tá.         | "                                        | "                 | Glwau-pa-yi, pas.  |

Thus are conjugated Rú-gno, to be filled (belly) or satisfied. Lé-gno, to return, Wo-gno, to enter. Glú-gno, to issue. Ming-gno, to be ripe. Bro-gno, to be flavoursome.

III.—Transitives in "ko." Infinitive, Pok-cho, to make get up, or raise (not lift). Imperative, Pokko, raise him.

|           |           |                  |         |            |             |
|-----------|-----------|------------------|---------|------------|-------------|
| 1. Pó-gú. | Pók-tóng. | 1. Póng-yi? (i). | Pók-ti. | Pong-pato. | } ut supra. |
| 2. Pó-gí. | Pók-teu.  | 2. Pong-ye.      | Pók-te. | Pong-paso. |             |
|           |           | Pó-nyó.          |         |            |             |
| 3. Pó-gá. | Pók-ta.   | 3. Pó-gá.        | Pók-ta. | Pong-payi. |             |

Thus are conjugated Tuk-ko, to lick. Chuk-ko, to bind. Rik-ko, to reap. Kik-ko, to beget. Hik-ko, to count. Kú-ko, to crooken. Yok-ko, to share out. Pwak-ko, to unknot. Nok-ko, to rub. Tok-kon, to make fall. Hok-ko, to open. Jik-ko, to break. Pwak-ko vel Pukko, to burst. Ryak-ko, to write or colour. Jak-ko, to know. Khryak ko, to enrage and to revile. Rik-ko, to reap. Kok-ko, to dig. Ruk-ko, to eradicate. Tyak-ko, to hinder. Wok-ko, to flay. Khlyak ko, to plaster. Phwak-ko, to separate. Chyak-ko, to divide. Pík-ko, to pour or put in. Dwak-ko, to swallow.

N. B.—The double k is doubtful.

Intransitives in "ko." Infinitive, Bok-cho, to get up. Imperative, Bok-ko, get up.

|                   |         |   |   |            |             |
|-------------------|---------|---|---|------------|-------------|
| 1. Bóng-gna.      | Bók-ti. | " | " | Bong-pa-to | } ut supra. |
| 2. Bóng-gne, nye. | Bók-te. | " | " | Bong-pa-so |             |
| 3. Bóng.          | Bók-ta. | " | " | Bong-pa-yi |             |

Thus are conjugated Gruk-ko, to be quick. Jwak-ko, to arrive. Jik-ko, to be broken, (n and a). Buk-ko, to be burst. Bwak-ko, to remain and to speak. Gú-ko, to be crooked. Phok-ko, to be sour. Gwak-ko, to walk. Duk ko, to move or shake. Prok-ko, to jump, or leap. Byak-ko, to die. Grik-ko, to be born. Gnwak-ko, to weep. Dwak-ko, to desire, Dok-ko, to fall from aloft (being only). Here again the double k is doubtful, e. g. Dóko or Dokko: et sic decet.

IV.—Transitives in "ro." Infinitive, Phyé-cho, to sew. Imperative, Phér-ro, sew it.

|            |            |                 |          |           |             |
|------------|------------|-----------------|----------|-----------|-------------|
| 1. Phyé-ú. | Phyé-tong. | 1. Phyé-yi (i). | Phyé-ti. | Phyé-pato | } ut supra. |
| 2. Phyé-i. | Phyé-t-eu. | 2. Phyé-e.      | Phyé-te. | Phyé-paso |             |
| 3. Phyé.   | Phyé-ta.   | 3. Phyé.        | Phyé-ta. | Phyé-payi |             |

Thus are conjugated Chwarro, to cut. Kurro, to carry. Tyarro, to suffer, endure. Khwarro, to shave or scrape or scratch (violently). N. B.—Iterate final "r" is doubtful.

Intransitives in "ro." Infinitive, Byar-cho, to fly. Imperative, Byarro, fly.

|              |           |   |   |           |             |
|--------------|-----------|---|---|-----------|-------------|
| 1. Byar-gná. | Byar-ti.  | " | " | Byar-pato | } ut supra. |
| 2. Byar-é.   | Byar-t-e. | " | " | Byar-paso |             |
| 3. Byar.     | Byar-t-a. | " | " | Byar-payi |             |

Thus are conjugated Bárro, to increase. Chyárró, to shine, as sun, &c.

V.—Transitives in “lo.” Infinitive, Jyul-cho, to place. Imperative, Jyullo, place it.

| <i>Indicative active, sing. number.</i> |                   | <i>Indicative passive, sing. number.</i> |                   | <i>Causal.</i>     |
|-----------------------------------------|-------------------|------------------------------------------|-------------------|--------------------|
| <i>Present.</i>                         | <i>Preterite.</i> | <i>Present.</i>                          | <i>Preterite.</i> | <i>Imperative.</i> |
| 1. Jyul-u.                              | Jyul-tong.        | 1. Jyul-yi.                              | Jyul-ti.          | Jyul-pato } ut     |
| 2. Jyul-i.                              | Jyul-teu.         | 2. Jyul-e.                               | Jyul-te.          | Jyul-paso } supra. |
| 3. Jyul.                                | Jyul-ta.          | 3. Jyul.                                 | Jyul-ta.          | Jyul-payi }        |

Thus are conjugated Syallo, to snatch away. Theullo, to cherish. Yallo, to rub. Lamo challo, to tell lies. N. B.—The iterate final consonant again doubtful.

Intransitives in “lo.” Infinitive, Bál-cho, to be tired. Imperative, Bállo, be tired.

|             |         |   |   |                   |
|-------------|---------|---|---|-------------------|
| 1. Bál-gna. | Bál-ti. | ” | ” | Bál-pato } ut     |
| 2. Bál-e.   | Bál-te. | ” | ” | Bál-paso } supra. |
| 3. Bál.     | Bál-ta. | ” | ” | Bál-payi }        |

Thus are conjugated Hyállo, to be heavy, &c.

VI.—Transitives in “po.” Infinitive, Teup-cho, to beat. Imperative, Teuppo, beat him.

|            |            |                 |          |                    |
|------------|------------|-----------------|----------|--------------------|
| 1. Teub-u. | Teup-tong. | 1. Teum-yi (i). | Teup-ti. | Teum-pato } ut     |
| 2. Teub-i. | Teup-teu.  | 2. Teum-é.      | Teup-te. | Teum-paso } supra. |
| 3. Teub-a. | Teup-ta.   | 3. Teub-á.      | Teup-ta. | Teum-payi }        |

Thus are conjugated Gup-po, to lift (a light thing). Bippo, to suck. Syappo, to wash and sharpen. Khuppo, to collect. Jyappo, to buy. Thappo, to weigh. Chappo, to can it, to be able for any work. Nippo, to express. Appo, to shoot. N. B.—The iterate consonant doubtful.

Intransitives in “po.” Infinitive, Rap-cho, to stand. Imperative, Rappo, stand up.

|             |         |   |   |                   |
|-------------|---------|---|---|-------------------|
| 1. Ram-gna. | Rap-ti. | ” | ” | Ram-pato } ut     |
| 2. Ram-é.   | Rap-te. | ” | ” | Ram-paso } supra. |
| 3. Ram.     | Rap-ta. | ” | ” | Ram-payi }        |

Thus are conjugated Ippo, to sleep. Ryippo, to be ended or to end. n Dhap-po, to shine as sun. Deuppo, to be combust. Jippo, to be rotten, &c.

VII.—Transitives in “mo.” Infinitive, Lam-cho, to search. Imperative, Lammo, search for it.

|           |           |                |         |                   |
|-----------|-----------|----------------|---------|-------------------|
| 1. Lam-u. | Lam-tong. | 1. Lam-yi (i). | Lam-ti. | Lam-pato } ut     |
| 2. Lam-i. | Lam-teu.  | 2. Lam-e.      | Lam-te. | Lam-paso } supra. |
| 3. Lam.   | Lam-ta.   | 3. Lam.        | Lam-ta. | Lam-payi }        |

Thus are conjugated Nam-mo, to smell. Theum-mo, to finish or cease to become. Khleummo, to transplant. Phemmo, to take in one's arms. Shemmo, to cover. Thummo, to bury. Hammo, to spread. Here again the iterate consonant is doubtful. This conjugation agrees with IV. and V. See remark at VIII.

Intransitives in “mo.” Infinitive, Dyum-cho, to become. Imperative, Dyummo, become.

|              |          |   |   |                    |
|--------------|----------|---|---|--------------------|
| 1. Dyum-gna. | Dyum-ti. | ” | ” | Dyum-pato } ut     |
| 2. Dyum-é.   | Dyum-te. | ” | ” | Dyum-paso } supra. |
| 3. Dyum.     | Dyum-ta. | ” | ” | Dyum-payi }        |

Thus are conjugated Rimmo, to be handsome. Dyammo, to be full. Hammo, to be light (levis). Khummo, to stoop. Ryammo, to be emaciated, or thin. N. B.—Double consonant doubtful.

VIII.—Transitives in “no.” Infinitive, Pun-cho, to beg. Imperative, Punmo, beg it.

|           |           |            |         |                   |
|-----------|-----------|------------|---------|-------------------|
| 1. Pun-u. | Pun-tong. | 1. Pun-yi. | Pun-ti. | Pun-pato } ut     |
| 2. Pun-i. | Pon-teu.  | 2. Pun-e.  | Pun-te. | Pun-paso } supra. |
| 3. Pun.   | Pun-ta.   | 3. Pun.    | Pun-ta. | Pun-payi }        |



Thus are conjugated Ninno, to hear. Plenno, to release or set at liberty. Salepanno, to spin, &c.

N. B.—This agrees with the last. Hence IV. V. VII. VIII. are one, and it seems likely that the common imperative sign should be “o,” however near that be to “wo” or the sign of the very different first conjugation. The four specified agree moreover in not being subject to any euphonic changes in conjugation. They might be unitized as transitives in a liquid or nasal.

Intransitives in “no” Infinitive, Wan-cho, to run. Imperative, Wan-no, run.

| <i>Indicative active, sing. number.</i> |                   | <i>Indicative passive, sing. number.</i> |                   | <i>Causal</i>      |
|-----------------------------------------|-------------------|------------------------------------------|-------------------|--------------------|
| <i>Present.</i>                         | <i>Preterite,</i> | <i>Present.</i>                          | <i>Preterite.</i> | <i>Imperative.</i> |
| 1. Wan-gna.                             | Wan-ti.           | „                                        | „                 | Wan-pato } ut      |
| 2. Wan-é.                               | Wan-te.           | „                                        | „                 | Wan-paso } supra.  |
| 3. Wan.                                 | Wan-ta.           | „                                        | „                 | Wan-payi }         |

Thus are conjugated Blemmo, to live, &c. N. B.—Here as before, the doubling of the consonant is doubtful.

IX.—Transitives in “to” Infinitive Biécho, to summon. Imperative, Bié-to, summon him.

|            |           |            |         |                   |
|------------|-----------|------------|---------|-------------------|
| 1. Brét-u. | Bréttong. | 1. Biét-i. | Biétti. | Bié-pato } ut     |
| 2. Biét-i. | Biétteu.  | 2. Biét-e. | Biétte. | Bié-paso } supra. |
| 3. Biét-a. | Biétta.   | 3. Biét-a. | Biétta. | Bié-payi }        |

So are conjugated Ríto, to laugh at. Dáto, to catch. Níto, to set down. Khleuto, to conceal. Neuto, to make good. Mú-to, to blow (breath). Khúto, to touch. Guék-to, to quicken. Bí-to, to obey. Rok-to, to lift. Dwak-to, to approve. Khyapto, to kindle. Rik-to, to contain. Gap-to, to add to. Duk-to, to shake it or cause to shake. Grepto, to throw. Dapto, to taste. Nyapto, to shove. Mimto, to remember. Bláto, to dry at fire. Jító, to wet. Chamto, to amuse. Ténto, to know. Yokto, to remove. Le-to, to take back. Svanto, to recognise. Hanto, to cheat. Játo, to stop, detain. Khlamto, to spoil. Lwakto, to put upon. Bapto, to scratch for ease. Plepto, to fold. Timto, to squeeze. Lapto, to turn over. N. B.—Those which have a consonant before the sign, as Rok-to, Dap-to, Dwak-to, Cham-to, Han-to and Khlam-to, &c. do not double the “t” in the preterite of either voice; and consequently, in the passive, there is no mark of the distinction of time, e. g. Dapti, is I am tasted and I was tasted; and, again, Daptu is I taste, Daptong, I tasted, but Dapta, is he tastes or he tasted—the last, however, is a general trait.

X.—Transitives in “to” which change the “t” into “d.” Infinitive, Sá-cho, to kill. Imperative, Sá-to, kill him.

|           |         |          |       |                  |
|-----------|---------|----------|-------|------------------|
| 1. Sád-u. | Satong. | 1. Sáyi. | Sáti. | Sá-pato } ut     |
| 2. Sád-i. | Sáteu.  | 2. Sáne. | Sáfe. | Sá-paso } supra. |
| 3. Sád-a. | Sáta.   | 3. Sada. | Sata. | Sa-payi }        |

Thus are conjugated Wá-to, abandon or leave. Tá-to, to kick. Yéto, to split. Úto, to fell. Lá-to, to take away. Páto, to do for another. Krá-to, to bite. Klé-to, to undress. Móto, to tell. Chító, to tear. Píto, to bring. Kú-to, to bring up. Lumléto, to feel. Yú-to, to bring down. Já-to, to make steady or firm. Phú-to, to sow. Náto and Piéto, to gather. Pha-to, to exchange. Khrí-to, to grind. Hó-to, to pierce. Hé-to, to distil.

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\* In such cases the sense is determined by the use of the separate prefixed pronouns in the instrumental and objective respectively. Difference of time by an adverb.

Intransitives in "to." Infinitive, Gní-cho, to be afraid. Imperative, Gní-to, be afraid.

| <i>Indicative active, sing. number.</i> |                   | <i>Indicative passive, sing. number.</i> |                   | <i>Causal.</i>     |
|-----------------------------------------|-------------------|------------------------------------------|-------------------|--------------------|
| <i>Present.</i>                         | <i>Preterite.</i> | <i>Present.</i>                          | <i>Preterite.</i> | <i>Imperative.</i> |
| 1. Gní-gua.                             | Gní-ti.           | "                                        | "                 | Gní-pato           |
| 2. Gní-ne.                              | Gní-te.           | "                                        | "                 | Gní-paso           |
| 3. Gní.                                 | Gní-ta.           | "                                        | "                 | Gní-payi           |

ut  
supra \*

So are conjugated Jí-to, to be torn. Khá-to, to be in pain. Ú-to, to fall (on ground). Sheö-to, to lose. Lé-to, to return. Jyukokáto, to flee. Héto, to be sharp. Bré-to, to vociferate.

XI.—Neuters in "to." Infinitive, Bo-cho, to flower. Imperative, Bo-to, flower.

|           |        |   |   |         |
|-----------|--------|---|---|---------|
| 1. Bót-u. | Bótti. | " | " | Bó-pato |
| 2. Bót-i. | Bótte. | " | " | Bó-paso |
| 3. Bót-a. | Botta. | " | " | Bó-payi |

ut  
supra.

Thus are conjugated Khíto, to blow as wind. Sító, to fruit. Wamto, to sink or set as sun. But the last gives, owing to the consonant before the sign. Wamtu, Wamti, Wamta; Wamti, Wamte, Wamta. Infinitive, wam-cho. (See Kwado and Sodo). Sí-to is often conjugated Sidu, Sidi, Sida; Siti, Site, Sita.

XII.—Transitives in "to." Infinitive, Gram-cho, to hate. Imperative, Gram-do, hate him.

|            |           |            |         |           |
|------------|-----------|------------|---------|-----------|
| 1. Gramdu. | Gramtong. | 1. Gramdi. | Gramti. | Gram-pato |
| 2. Gramdi. | Gramteu.  | 2. Gramde. | Gramte. | Gram-paso |
| 3. Gramda. | Gramta.   | 3. Gramda. | Gramta. | Gram-payi |

ut  
supra.

Thus are conjugated Chyurdo, to wring. Rimdo, to expect. Cháyindo or Chy-éndo, to teach. Kwádo, to put on the fire. Wando, to put or pour in. Wádo, to throw away. Plendo, to forget. Chamdo, to divert, amuse. Glundo, to extract or take out. Jyuldo, to place for another. Tundo, to cause to drink. Sódó, to tell for another. Gremdo, to roast. Heldo, to mix. But Kwádo and Sódó, having no consonant before the sign; double the t, as in IX. thus

|           |          |           |        |          |
|-----------|----------|-----------|--------|----------|
| 1. Só-du. | Sóttong. | 1. Só-di. | Sótti. | Só-pato. |
| 2. Só-di. | Sótteu.  | 2. Só-de. | Sótte. | Só-paso. |
| 3. Só-da. | Sótta.   | 3. Só-da. | Sótta. | Só-payi. |

N. B.—This, like Sógno of conjugation II. makes infinitive Só-cho and causal Só-pato, &c. and in fact the various modifications of the verbs by voice and in the peculiar manner here in question (so-gno, tell; so-do, tell for another) are sadly deficient in correspondent forms of the infinitive and participles. See on.

Intransitives in "do." Infinitive, Myel-cho, to be sleepy. Imperative, Myel-do, be sleepy.

|            |         |   |   |           |
|------------|---------|---|---|-----------|
| 1. Myeldu. | Myelti. | " | " | Myel-pato |
| 2. Myeldi. | Myelte. | " | " | Myel-paso |
| 3. Myelda. | Myelta. | " | " | Myel-payi |

ut  
supra.

N. B.—This nearly agrees with XI. only that the root having a final consonant, the preterite "t" is not doubled. So are conjugated (I have found no other verbs of this conjugation).

\* Uto and Sheöto, like Jikko elsewhere, are both neuter and transitive. See them under the respective heads. Khíwo, to tremble is neuter; to quarrel is transitive. Bié to, to cry out is neuter; Bié-to, to summon is active.

XIII.—Intransitives in “so.” Infinitive, Nis-cho, to sit. Imperative, Niso, sit down.

| <i>Indicative active, sing. number.</i> |                   | <i>Indicative passive, sing. number.</i> |                   | <i>Causal Imperative.</i> |
|-----------------------------------------|-------------------|------------------------------------------|-------------------|---------------------------|
| <i>Present.</i>                         | <i>Preterite.</i> | <i>Present.</i>                          | <i>Preterite.</i> |                           |
| 1. Nísi-gna.                            | Ní-s-ti.          | ”                                        | ”                 | Nísi-pato } ut            |
| 2. Ní-se.                               | Ní-s-te.          | ”                                        | ”                 | Nísi-paso } supra.        |
| 3. Ní-se.                               | Ní-s-ta.          | ”                                        | ”                 | Nísi-payi }               |

This conjugation interposes its reflex sign or “s,” between the root and the ordinary intransitive conjugational forms. Nearly all transitives can be conjugated in this form as a middle voice. But it has also many primitives as will be seen by the instances given. So also are conjugated Wáso cacare. Chársa mingere. Píso crepitum facere. Náso, to take rest. Cháyénso or Chayínso, to learn. Khleuso, to lie hid. Syínso or Shayínso, to wake. Sáso, to kill one's self. Teumso, to beat one's self. Bamso, to scratch one's self. Ríso, to laugh. Gléso, to lie down. Chíso, to bathe. Phíso, to dress. Chamso, to play. Prénso, to begin.

### CONJUGATION OF BAHING VERBS.

#### I.—Paradigm of verbs transitive in “wo.”

Root Já, to eat. Imperative já-wo.

#### ACTIVE VOICE.

##### *Imperative Mood.*

| <i>1. Singular of Agent.</i> | <i>1. Dual of Agent.</i>      | <i>1. Plural of Agent.</i>    |
|------------------------------|-------------------------------|-------------------------------|
| Já-wo, eat it.               | Já-se, ye two eat it.         | Já-ne, ye all eat it.         |
| <i>2. Dual of Object.</i>    | <i>2. Dual of Object.</i>     | <i>2. Dual of Object.</i>     |
| Já-wosi, eat them two.       | Já-sesi, ye two eat them two. | Já-nési, ye all eat them two. |
| <i>3. Plural of Object.</i>  | <i>3. Plural of Object.</i>   | <i>3. Plural of Object.</i>   |
| Já-womi, eat them all.       | Jásemi, ye two eat them all.  | Jánémi, ye all eat them all.  |

##### *Negative Form.*

By má prefixed Má já wo, &c. and so in all the subsequent moods.

#### INDICATIVE MOOD.

##### *Present and Future Tenses.*

| <i>Singular of Agent.</i>          | <i>Dual of Agent.</i>                                           | <i>Plural of Agent.</i>                                       |
|------------------------------------|-----------------------------------------------------------------|---------------------------------------------------------------|
| <i>First Person.</i>               |                                                                 |                                                               |
| 1. { Já-gna, I eat or will eat it. | 1. { Já-sa, inclusive.<br>Ja-suku, exclusive.<br>We two eat it. | 1. { Já-ya, inclusive.<br>Já-ka, exclusive.<br>We all eat it. |

*Dual of Object.*

2. { Ja-gna-si,  
I eat them two.

*Plural of Object.*

3. { Ja-gna-mi,  
I eat them all.

*Dual of Object.*

2. { Ja-sa-si, inclusive,  
Ja-sukusi, exclusive,  
We two eat them  
two.

*Plural of Object.*

3. { Ja-sa-mi, inclusive,  
Ja-suku-mi, excl.  
We two eat them  
all.

*Second Person.*

1. Já-(y) í.  
2. Já-(y)-i-si.  
3. Já (y)-i-mi.

1. Já-si.  
2. Já-si-si.  
3. Já-si-mi.

*Third Person.*

1. Ja-wa.  
2. Já-wa-si.  
3. Já-wa-mi.

1. Já-se.  
2. Já-se-si.  
3. Já-se-mi.

*Dual of Object.*

2. { Já-ya-si, inclusive,  
Já-ka-si, exclusive,  
We all eat them  
two.

*Plural of Object.*

3. { Ja-yami, incl.  
Ja-ka-mi, excl.  
We all eat them  
all.\*

1. Ja-ni.  
2. Já-ni-si.  
3. Já-ni-mi.

*Preterite Tense.**First Person.*

1. Já-tong.  
2. Já-t-óng-si.  
3. Já-t-óng-mi.

1. { Já-tá-sá, incl.  
Já-tá-túku, excl.†  
2. { Já-tá-sá si, incl.  
Já-tá-túkú-si, excl.  
3. { Já-tá-sá-mi, incl.  
Já-tá-sú-kú-mi, excl.

1. { Ján-tá-yo, incl.  
Ják-tá-ko, excl.  
2. { Ján-tá-yo-si, incl.  
Ják-tá-kó-si, excl.  
3. { Ján-tá-yó-mi, incl.  
Ják-tá-kó-mi, excl.

N. B.—The intercalated n and k are devious. See on.

*Second Person.*

1. Jáp-t-eu.  
2. Jáp-t-eu-si.  
3. Jáp-t-eu-mi.

1. Já-tá-si.  
2. Já-tá-si-si.  
3. Já-tá-si-mi.

1. Ján-tá-ni.  
2. Ján-tá-ni-si.  
3. Ján-tá-ni-mi.

N. B.—The intercalated p and n are devious.

*Third Person.*

1. Jáp-t-a.  
2. Jáp-t-asi.  
3. Jáp-t-a-mi.

1. Já-ta-se.  
2. Já-tá-se-si.  
8. Já-ta-se-mi.

1. Jám-ta-me.  
2. Jám-ta-me-si.  
3. Jám-ta-me-mi.

N. B.—The intercalated p and m are devious.

\* The form of the conjugation in the remaining persons of the indicative mood being the same as in the first person (and also in the imperative) it is needless to load the paper with repetitions of the names of the numbers, agentive and objective, or with the English equivalents.

† Observe that the separation of the syllables is merely to facilitate the student's comprehension, and that I shall do so no further, for the genius of the language is averse to any such treatment of its finely blended elements.

*Infinitive Mood.*

Já-cho, to eat or to have eaten, aoristic. .

*Participles.*

(Take notice that all the participles are essentially relative and that they correspond as to sense with nouns, substantival or adjectival ad habitum.)

## 1ST. PARTICIPLE OF THE AGENT.

*Impersonal Form.*

Já-ba, the eater, who eats, or ate, or will eat; aoristic.

N. B.—This participle has no impersonated equivalent.

## 2ND. PARTICIPLE OF THE OBJECT AND OF THE INSTRUMENT ALSO EXPRESSIVE OF HABIT AND OF FITNESS.

*Present and future time.**Impersonal form.*

Jácho-me, eatable, what is usually eaten or is fit to eat (to be eaten) what or whom any one eats or will eat (food), and what he eats or will eat with (teeth).

## 3RD. PARTICIPLE OF THE OBJECT AND OF THE INSTRUMENT.

*Past time.**Impersonal form.*

Já-na, eaten, what or wherewith any one ate (also what has been eaten).

## 4TH. PERSONATED EQUIVALENT OF 2ND PARTICIPLE, SUPRA.

*First person.*

| <i>Singular of Agent.</i>         | <i>Dual of Agent.</i>                                          | <i>Plural of Agent.</i>                                      |
|-----------------------------------|----------------------------------------------------------------|--------------------------------------------------------------|
| 1. Ja-gname, the one that I eat.  | 1. { Jasame,<br>Jasukume,<br>the one that we<br>two eat.       | 1. { Jayame,<br>Jakame,<br>the one that we<br>all eat.       |
| <i>Dual of Object.</i>            | <i>Dual of Object.</i>                                         | <i>Dual of Object.</i>                                       |
| 2. Jagnasime, the two that I eat. | 2. { Jasnasime,<br>Jasukusime,<br>the two that we<br>two eat.  | 2. { Jayasime,<br>Jakusime,<br>the two that we<br>all eat.   |
| <i>Plural of Object.</i>          | <i>Plural of Object.</i>                                       | <i>Plural of Object.</i>                                     |
| 3. Jagnamime, the all that I eat. | 3. { Jasnasmime,<br>Jasukumime,<br>the all that we<br>two eat. | 3. { Jayasmime,<br>Jakasmime,<br>the all that we<br>all eat. |

*Second person.*

|              |              |              |
|--------------|--------------|--------------|
| 1. Jayime.   | 1. Jasime.   | 1. Janime.   |
| 2. Jayisime. | 2. Jasisime. | 2. Janisime. |
| 3. Jayimime. | 3. Jasimime. | 3. Janimime. |

*Third person.*

|              |               |              |
|--------------|---------------|--------------|
| 1. Jawame.   | 1. Jaseme.    | 1. Jameme.   |
| 2. Jawasime. | 2. Jasesime.  | 2. Jamesame. |
| 3. Jawamime. | 3. Jasesmime. | 3. Jamemime. |

These (2nd and 3rd person) of course mean respectively what or wherewith thou and he (or she) eats or will eat, &c. see note to 1st person of indicative mood.

#### 5TH. IMPERSONATED EQUIVALENT OF 3RD PARTICIPLE, SUPRA.

##### First Person.

- |                                       |                                   |                                   |
|---------------------------------------|-----------------------------------|-----------------------------------|
| 1. Játongme, (the one<br>that I ate.) | 1. { Játasame.<br>Játasukume.     | 1. { Jántayome.<br>Jáktakome.     |
| 2. Játongsime.                        | 2. { Játasisime.<br>Játasukusime. | 2. { Jántayosime.<br>Jáktakosime. |
| 3. Játongmime.                        | 3. { Játasamime.<br>Játasukumime  | 3. { Jántavomime.<br>Jáktakomime. |

##### Second Person.

- |                |                |                 |
|----------------|----------------|-----------------|
| 1. Jápteume.   | 1. Játasime.   | 1. Jántanime.   |
| 2. Jápteusime. | 2. Játasisime. | 2. Jántanisime. |
| 3. Jápteumime. | 3. Játasimime. | 3. Jántanimime. |

##### Third Person.

- |              |                |                  |
|--------------|----------------|------------------|
| 1. Jápame.   | 1. Játaseme.   | 1. Jántameme.    |
| 2. Jápasime. | 2. Játasesime. | 2. Jántamesime.  |
| 3. Jápamime. | 3. Játasemime. | 3. Jántanumime.* |

#### GERUNDS.

*Gerund of the present and future time, impersonal.*

There is none.

*Gerund of present and future time personated.*

#### 1ST.—WITH MAIN VERB IN PRESENT OR FUTURE TIME.

##### First person.

- | <i>Singular of Agent.</i>                       | <i>Dual of Agent.</i>                       | <i>Plural of Agent.</i>                 |
|-------------------------------------------------|---------------------------------------------|-----------------------------------------|
| 1. Jagnana, I eating it,<br>shall do so and so. | 1. { Jasnana, exclusive.<br>Jasukuna, incl. | 1. { Jayana, incl.<br>Jakana, excl.     |
| <i>Dual of Object.</i>                          | <i>Dual of Object.</i>                      | <i>Dual of Object.</i>                  |
| 2. Jagnasina.                                   | 2. { Jasnasina, incl.<br>Jasakusina, excl.  | 2. { Jayasina, incl.<br>Jakasina, excl. |
| <i>Plural of Object.</i>                        | <i>Plural of Object.</i>                    | <i>Plural of Object.</i>                |
| 3. Jagnamina.                                   | 3. { Jasnamina, incl.<br>Jasukumina, excl.  | 3. { Jayamina, incl.<br>Jakamina, excl. |

##### Second person.

- |              |              |              |
|--------------|--------------|--------------|
| 1. Jayina.   | 1. Jasina.   | 1. Janina.   |
| 2. Jayisina. | 2. Jasisina. | 2. Janisina. |
| 3. Jayimina. | 3. Jasimina. | 3. Janimina. |

##### Third person.

- |              |              |               |
|--------------|--------------|---------------|
| 1. Jawana.   | 1. Jasena.   | 1. Jamena.    |
| 2. Jawasina. | 2. Jasasina. | 2. Jamesina.  |
| 3. Jawamina. | 3. Jasemina. | 3. Jameumina. |

\* The above forms of the participle and gerund add merely the respective formative particles to the several tense forms; being "me" for the participle and "na" for the gerund.

2ND.—SAME GERUND, PERSONATED WITH MAIN VERB IN  
PRETERITE.

*First person.*

|                                               |                                               |                                              |
|-----------------------------------------------|-----------------------------------------------|----------------------------------------------|
| 1. Jatongna, (I eating<br>it, did so and so). | 1. {Jatasana, inclusive.<br>Jatasukuna, excl. | 1. {Jantayóna, incl.<br>Jáktakóna, excl.     |
| 2. Jatongsina.                                | 2. {Jatasísina, incl.<br>Jatasukúsina, excl.  | 2. {Jantayósina, incl.<br>Jáktakósina, excl. |
| 3. Jatongmina.                                | 3. {Jatasamina, incl.<br>Jatasukumina, excl.  | 3. {Jantayómina, incl.<br>Jáktakómina, excl. |

*Second person.*

|                |                |                 |
|----------------|----------------|-----------------|
| 1. Japteuna.   | 1. Jatasuna.   | 1. Jantanina.   |
| 2. Japteusina. | 2. Jatasúsina. | 2. Jantanisina. |
| 3. Japteumina. | 3. Jatasumina. | 3. Jantanmina.  |

*Third person.*

|               |                |                  |
|---------------|----------------|------------------|
| 1. Japtana.   | 1. Jatasena.   | 1. Jantamena.    |
| 2. Japtasina. | 2. Jatasésina. | 2. Jantamesina.  |
| 3. Japtamina. | 3. Jatasemina. | 3. Jantamemina.* |

*Gerund of past time, impersonal Jáso, and Jásomami.†*

Same Gerund, personated.

1ST.—WITH MAIN VERB IN PRESENT OR FUTURE.

*First person.*

| <i>Singular of Agent.</i>                           | <i>Dual of Agent.</i>                    | <i>Plural of Agent.</i>                |
|-----------------------------------------------------|------------------------------------------|----------------------------------------|
| 1. Jagnako, (I having ate<br>it, will do so and so) | 1. {Jasako, incl.<br>Jasukuko, excl.     | 1. {J-yako, incl.<br>Jakako, excl.     |
| <i>Dual of Object.</i>                              | <i>Dual of Object.</i>                   | <i>Dual of Object.</i>                 |
| 2. Jagnasiko.                                       | 2. {Jasasiko, incl.<br>Jasukusiko, excl. | 2. {Jayasiko, incl.<br>Jakasiko, excl. |
| <i>Plural of Object.</i>                            | <i>Plural of Object.</i>                 | <i>Plural of Object.</i>               |
| 3. Jagnamiko.                                       | 3. {Jasamiko, incl.<br>Jasukumiko, excl. | 3. {Jayamiko, incl.<br>Jakamiko, excl. |

*Second person.*

|              |              |              |
|--------------|--------------|--------------|
| 1. Jayiko.   | 1. Jasiko.   | 1. Jamko.    |
| 2. Jayisiko. | 2. Jasísiko. | 2. Jamísiko. |
| 3. Jayumiko. | 3. Jasmiko.  | 3. Jamumiko. |

*Third person.*

|              |              |              |
|--------------|--------------|--------------|
| 1. Jawako.   | 1. Jaseko.   | 1. Jameko.   |
| 2. Jawasiko. | 2. Jasesiko. | 2. Jamésiko. |
| 3. Jawamiko. | 3. Jasemiko. | 3. Jamemiko. |

\* The above forms of the participle and gerund add merely the respective formative particles to the several tense forms; being "me" for the participle and "na" for the gerund.

† See remark in the sequel on Jáóño with the auxiliary.

2ND.—THE SAME GERUND WITH THE MAIN VEBB IN THE  
PRETERITE.

*First person.*

- |                                                 |                                               |                                               |
|-------------------------------------------------|-----------------------------------------------|-----------------------------------------------|
| 1. Jatangko, (I having<br>ate it did so and so. | 1. { Jatasako, incl.<br>Jatasukuko, excl.     | 1. { Jantayoko, incl.<br>Jaktakoko, excl.     |
| 2. Jatongsiko.                                  | 2. { Jatasasiko, incl.<br>Jatasukusiko, excl. | 2. { Jantayosiko, incl.<br>Jaktakosiko, excl. |
| 3. Jatongmiko.                                  | 3. { Jatasamiko, incl.<br>Jatasukumiko, excl. | 3. { Jantamiko, incl.<br>Jaktakomiko, excl.   |

*Second person.*

- |                |                |                 |
|----------------|----------------|-----------------|
| 1. Japteuko.   | 1. Jatasiko.   | 1. Jantaniko.   |
| 2. Japtusiko.  | 2. Jatasisiko. | 2. Jantanisiko. |
| 3. Japteumiko. | 3. Jatasimiko. | 3. Jantanimiko. |

*Third person.*

- |               |                |                  |
|---------------|----------------|------------------|
| 1. Japtako.   | 1. Jataseko.   | 1. Jamtameko.    |
| 2. Japtusiko. | 2. Jatasisiko. | 2. Jamtamesiko.  |
| 3. Japtamiko. | 3. Jatasemiko. | 3. Jamtamemiko.* |

*Reflex transitive, or middle voice† of the transitive verb to eat.*

IMPERATIVE MOOD.

| <i>Singular.</i>   | <i>Dual.</i>                         | <i>Plural.</i>                         |
|--------------------|--------------------------------------|----------------------------------------|
| Jáso, eat thyself. | { Jás-che, ye two eat<br>yourselves. | { Jásine,‡ ye all eat your-<br>selves. |

\* Here as before, the gerundial impersonated forms are constructed by merely adding the past gerund sign or "ko" to the several forms of the tenses; and as in the indicative mood, there are 33 personal forms proper to either time (present or future and preterite) so there are 66 forms of the gerund of past time and in like manner are there 66 of the gerund of present time; and so also of the participles, not to add the three impersonate forms of the latter, making with them 69! This is a more than Manchuric luxuriance of participial and gerundial growth. I have now gone through the most essential and characteristic forms of the verb, and shall reserve the less essential or the several other so called moods &c. for the sequel, proceeding first to the reflex or middle voice and then to the passive upon the present model. The gerunds are purely verbal with no touch of the noun and they are essentially continuative, serving in lieu of the conjunction "and."

† There are a great many primitives or neuters in "so," besides the derivatives or reflex forms of the transitives which I call their middle voice. All transitives make their middle voice by changing their appropriate sign into "so." This form is perfectly uniform for all primitives and derivatives. The French *amuser* and *s'amuser*, = *cham-cho* and *cham-s-cho* give a good idea of it.

‡ There are of course no objective forms of an intransitive verb, and all verbs in "so," whether primitively neuter or derived, as here from transitives, are so regarded. See and compare the transitive forms in the active voice aforegone.



## INDICATIVE MOOD.

*Present and Future Tense.*

| <i>Singular.</i> | <i>First person.</i>               |                                |
|------------------|------------------------------------|--------------------------------|
|                  | <i>Dual.</i>                       | <i>Plural.</i>                 |
| Jásigna.         | Jás-cha, incl.<br>Jás-chuku, excl. | Jásiya, incl.<br>Jásiku, excl. |
| Jáse.            | Jás-chi.                           | Jásini.                        |
| Jase.            | Jás-che.                           | Jásime.                        |

## PRETERITE TENSE.

|        | <i>First person.</i>                 |                                    |
|--------|--------------------------------------|------------------------------------|
|        | <i>Dual.</i>                         | <i>Plural.</i>                     |
| Jasti. | { Jastasa, incl.<br>Jastasuku, excl. | { Jastayo, incl.<br>Jastako, excl. |
| Jaste. | Jastasi.                             | Jastani.                           |
| Jasta. | Jastasa.                             | Jastame.                           |

## INFINITIVE MOOD.

Jascho, to eat, or to have eaten one's self, aoristic.

*Participles.*

## 1ST.—PARTICIPLE OF THE AGENT, IMPERSONAL.

Jásiba, the self-eater, one who eats, or will eat or ate himself, aoristic.

## 2ND.—PARTICIPLE OF THE OBJECT AND INSTRUMENT.

*Present and Future Time.**Impersonal Form.*

Jaschome, his own that any one eats or will eat, self eatable, what is self eaten or wherewith to eat self.

## 3RD.—SAME PARTICIPLE OF TIME PAST, IMPERSONAL.

Jasina, his own (flesh) that any one ate, or what has been selfeaten by any one; and wherewith it has been self eaten\* or his own (teeth) wherewith any one ate.

## 4TH.—IMPERSONATED EQUIVALENT OF PARTICIPLE 2ND IN CHOME.

| <i>Singular.</i>                             | <i>First person</i>                    |                                      |
|----------------------------------------------|----------------------------------------|--------------------------------------|
|                                              | <i>Dual.</i>                           | <i>Plural.</i>                       |
| Jasigname, my own that<br>I eat or eat with. | { Jaschame, incl.<br>Jaschukume, excl. | { Jasiyame, incl.<br>Jasikame, excl. |

\* The participles in cho-me and in na are scarcely useable in derivative verbs in "so" like Jaso, but more freely in primitives of the same formation such as wáso = caco, e. g., was-chome khli voidable ordure, and wásina khli = voided ordure, that is, the ordure which will be and has been, voided. This shows the passive bent of these participles and the affinity of neuter verbs to passives. See Classification of Verbs.

*Second person.*

Jaseme.

Jaschime.

Jasinime.

*Third person.*

Jaseme.

Jascheme.

Jasimeme.

## 5TH.—IMPERSONATED EQUIVALENT OF PARTICIPLE 3RD IN "NA."

*Singular.**Dual.**Plural.**First person.*Jastime, my own that  
I ate.{ Jastasame, incl.  
Jastasukume, excl.{ Jastayome, incl.  
Jastakome, excl.*Second person.*

Jasteme.

Jastasime.

Jastanime.

*Third person.*

Jastame.

Jastaseme.

Jastameme.

## GERUNDS.

*Gerund of present and future time, impersonal.*

There is none.

*Gerund of present and future time, personated.*

## 1ST.—WITH MAIN VERB IN SAME TIME.

*Singular.**Dual.**Plural.**First person.*Jasignana, (I eating my  
own flesh shall do so  
and so).{ Jaschana, incl.  
Jaschukuna, excl.{ Jasiyana, incl.  
Jasikuna, excl.*Second person.*

Jasena.

Jaschuna.

Jasinuna.

*Third person.*

Jasena.

Jaschena.

Jasimena.

## 2ND.—SAME GERUND PERSONATED WITH MAIN VERB IN

## PAST TENSE.

*First person.*Jastina, (I eating my  
own flesh did so and so.){ Jastasana, incl.  
Jastasukuna, excl.{ Jastayona, incl.  
Jastakona, excl.*Second person.*

Jastena.

Jastasina.

Jastanina.

*Third person.*

Jastana.

Jastasena.

Jastamena.

*Gerund of past time, impersonal.*

There is none.

*Same gerund personated.*

## 1ST.—WITH MAIN VERB IN PRESENT OR FUTURE.

*First person.*Jasignako, (I having  
eaten my own flesh  
shall do so and so.){ Jaschako, incl.  
Jaschukuko, excl.{ Jasiyako, incl.  
Jasikako, excl.

*Second person.*

Jaseko.

Jaschiko.

Jasiniko.

*Third person.*

Jaseko.

Jascheko.

Jasimeko.

## 2ND. — SAME GERUND WITH MAIN VERB IN THE PRETERITE.

*Singular.**Dual.**Plural.**First person.*Jastiko, (I having eaten  
my own did so and  
so).Jastasako, incl.  
Jastasukuko, excl.Jastavoko, incl.  
Jastakoko, excl.*Second person.*

Jasteko.

Jastasiko.

Jastaniko.

*Third person.*

Jastako.

Jastaseko.

Jastameko.

*Passive voice of the same verb.*

(Basis, Jayi = eat me).

## IMPERATIVE MOOD.

*Singular of Object.**Dual of Object.**Plural of Object.*

1. Jáyi, eat me thou.

1. Jásiki, eat us two thou.

1. Jákí, eat us all thou.

*Dual of Agent.**Dual of Agent.**Dual of Agent.*2. Jáyisi, eat me ye  
two.2. { Jásikisi, eat us two  
ye two.2. { Jákisi, eat us all ye  
two.*Plural of Agent.**Plural of Agent.**Plural of Agent.*

3. Jáyini, eat me ye all.

3. { Jásikini, eat us two  
ye all.3. { Jákini, eat us all ye  
all.\*

## INDICATIVE MOOD.

*Present and Future Tense.**First person.**Singular of Object.**Dual of Object.**Plural of Object.*1. Jáyí, eats me hé, =  
I am eaten by him.1. { Jásó, incl.  
Jásiki, excl.  
We two are eaten  
by him.1. { Jásó, incl.  
Jáki, excl.  
We all are eaten by  
him.

\* Observe that of the active voice of the transitive the object is him or her or it; of the middle voice the object is self; and of the passive the object is me, but that the order of arrangement of agent and object is reversed in the passive as compared with the active voice and so also in the indicative mood. This is done in conformity to the genius of this language which requires the attention to be primarily fixed on the agent in one voice, on the object in the other. It will be seen in the sequel that there are further special forms of the verb to denote the action which passes from me to thee and from thee to me. These are necessary complements of the passive voice in a language which makes the mention of agents and patients inseparable from that of the action.

*Dual of Agent.*

2. Jayisi, I am eaten by them two.

*Dual of Agent.*

2. { Jasosi, incl.  
Jasikisi, excl.  
We two are eaten by them two.

*Dual of Agent.*

2. { Jasosi,  
Jakisi,  
We all are eaten by them two.

*Plural of Agent.*

3. Jayimi, I am eaten by them all.

*Plural of Agent.*

3. { Jasomi, incl.  
Jasikimi, excl.  
We two are eaten by them all.

*Plural of Agent.*

3. { Jasomi, incl.  
Jakimi, excl.  
We all are eaten by them all.

N. B.—The agent is always of the 3rd person, he, she, or it; if it be 2nd person the conjugation is another.

*Second person.*

1. Jaye.  
2. Jayesi.  
3. Jayemi.

1. Jasi.  
2. Jasisi.  
3. Jasimi.

1. Jani.  
2. Janisi.  
3. Janimi.

*Third person.*

1. Jawa.  
2. Jase.  
3. Jame.

1. Jawasi.  
2. Jasesi.  
3. Jamesi.

1. Jawami.  
2. Jaemi.  
3. Jamemi.

*Preterite Tense.**First person.*

1. Jati.

1. { Jataso, incl.  
Jatasiki, excl.

1. { Jataso, incl.  
Jáktaki, excl.

2. Jatisi.

2. { Jatasosi, incl.  
Jatasikisi, excl.

2. { Jatasosi.  
Jaktakisi.

3. Jatimi.

3. { Jatasomi, incl.  
Jatasikimi, excl.

3. { Jatasomi.  
Jáktakimi.

*Second person.*

1. Jate.  
2. Jatesi.  
3. Jatemi.

1. Jatasi.  
2. Jatasisi.  
3. Jatasimi.

1. Jantani.  
2. Jantanisi.  
3. Jantanimi.

*Third person.*

1. Japta.  
2. Jatase.  
3. Jamtame.

1. Japtasi.  
2. Jatasesi.  
3. Jamtamesi.

1. Japtami.  
2. Jatasemi.  
3. Jamtamemi.

*INFINITIVE MOOD.*

There is none properly so called.

The sense is conveyed by placing the separate pronoun in the objective case before the verb in the active voice. Gó jácho, = to eat me, = to be eaten.

*PARTICIPLES.*

1st.—Participle of the agent in "ba" is of course wanting.

2nd.—Participle of the object in "chome" is rather passive than active though used in both voices, as we say in English what (or whom) any one eats or is wont to eat or what is wont to be eaten by any one.

3rd.—Participle in “na,” is yet more purely passive, Já-na, what has been eaten. But it is used with more than English license as though it belonged to the active voice, what any one hath eaten.

4th.—Personated equivalent of the 2nd of the above. It is formed by adding the formative suffix “me” to the several tense forms of the indicative present and future of this voice, e. g.

*Singular of Agent.**Dual of Agent.**Plural of Agent.*

1. Jayime.

1. { Jásome, incl.  
Jasikime, excl.1. { Jásome, incl.  
Jákime, excl.

and so on through the whole of the thirty-three forms above given in the indicative.

5th.—Personated equivalent of the 3rd of the above participles or that in “na.” It is formed as above by adding the formative “me” to the several forms of the preterite indicative of this voice, e. g.

1. Jatime.

1. { Jatasome, incl.  
Jatasikime, excl.1. { Jatasome, incl.  
Jatakime, excl.

and so on through all the 33 forms of the three persons of the preterite passive. Jayime means I who am the eaten of him, and Jatime, I who was the eaten of him, and so of all the rest.

N. B.—The impersonal forms in this, and of the active and middle voices are declinable like nouns. The personated in “me” which take so much of the verb character are indeclinable. Both are thoroughly and intrinsically relative in sense.

*Gerunds.*

Gerund of future and present time, impersonal.

There is none.

The same gerund personated.

1st.—With the main verb in same time.

It is formed by the addition of the appropriate formative or “na” to the several forms of the present and future indicative of this voice, e. g.

*Singular.**Dual.**Plural.*

1. Jáyina.

1. { Jasona, incl.  
Jasikina, excl.1. { Jasona, incl.  
Jakina, excl.

and so on through all the 33 forms of the three persons of the indicative.

2nd.—The same gerund personated with the main verb in the preterite.

It is formed by suffixing the “na” to the preterite indicative forms, e. g.

*Singular.**Dual.**Plural.*

1. Jatina.

1. { Jatasona, incl.  
Jatasikina, excl.1. { Jatasona, incl.  
Jatakina, excl.

Samples of the sense. Being eaten I shall cry out, Jáyina bréna: being eaten I cried out, Játina bréti.\*

\* Observe that the root bré, to cry out, is here conjugated as an intransitive. Elsewhere I have given the same root conjugated as a transitive in the sense of to summon. The infinitive and imperative (bre-cho, bre-to) are identical. This double indicative conjugation from the same root of words having nearly identical senses is very common, as úto, to fall and to fell, Jikko to be broken, and to break, &c. Bréto, the intransitive, is conjugated like guito, to be afraid, the type of regular intransitives in “to.”

Gerund of past time, impersonal.

There is none.

Same gerund personated.

1st.—With main verb in present or future.

It is formed by adding the formative "ko" to the several forms (33) of the indicative present and future, e. g.

| <i>Singular.</i> | <i>Dual.</i>                          | <i>Plural.</i>                      |
|------------------|---------------------------------------|-------------------------------------|
| 1. Jayiko.       | 1. { Jásoko, incl.<br>Jásikiko, excl. | 1. { Jásoko, incl.<br>Jákiko, excl. |

2nd.—Same gerund with the main verb in the preterite.

It is formed as above by adding "ko" to the several forms of the indicative preterite, e. g.

|            |                                           |                                         |
|------------|-------------------------------------------|-----------------------------------------|
| 1. Jatiko. | 1. { Jatasoko, incl.<br>Jatasikiko, excl. | 1. { Jatasoko, incl.<br>Jatakiko, excl. |
|------------|-------------------------------------------|-----------------------------------------|

and so on through all the 33 forms of the indicative preterite of this voice. The senses respectively of Jayiko and Jatiko are, having been eaten I shall be, and, having been eaten, I was or have been, (forgotten); and so of the rest.

Paradigm of certain special forms of conjugation supplementary of the passive and denoting

1st, the action that passes between me as the agent and thee as the patient. 2nd, that in which thou art the agent and I the patient. The first of these forms is very distinct, but is confined to the indicative (and subjunctive) mood.

It has no imperative or infinitive. The second runs much into the ordinary passive and has an imperative. See on.

1st form, I—thee.

(Verb Já, to eat, as before).

#### INDICATIVE MOOD.

##### *Present and Future Tense.*

| <i>Singular of Agent.*</i>                      | <i>Dual of Agent.</i>            | <i>Plural of Agent.</i>          |
|-------------------------------------------------|----------------------------------|----------------------------------|
| 1. Jáná, I eat thee or thou<br>art eaten by me. | { Jáyesi. We two eat thee.       | Jáyemi. We all eat thee.         |
| <i>Dual of Object.</i>                          | <i>Dual of Object.</i>           | <i>Dual of Object.</i>           |
| 2. Jánási, I eat you two.                       | { Jásisi. We two eat you<br>two. | { Jásimi. We all eat you<br>two. |
| <i>Plural of Object.</i>                        | <i>Plural of Object.</i>         | <i>Plural of Object.</i>         |
| 3. Jánáni, I eat you all.                       | { Jánisi. We two eat you<br>all. | { Jánimi. We all eat you<br>all. |

\* This form is rather allied to the passive than active, and may be called the supplement of the former, which is very incomplete and alien to the genius of the tongue, being cramped at the threshold by taking the 1st person objective for its starting point, thus, jayi = eat me. There is no Be thou eaten. And here jana and its participial janame look to the object chiefly, thou art eaten by me and thou who art the eaten of me.

*Preterite Tense.*

- |                                                          |   |                                     |                                     |
|----------------------------------------------------------|---|-------------------------------------|-------------------------------------|
| 1. Jantana, I ate thee, or,<br>thou wast eaten by<br>me. | } | Játesi. We two ate thee.            | Játemi. We all ate thee.            |
| 2. Jántanasi, I ate you<br>two.                          |   | { Játasisi. We two ate you<br>two.  | { Játasimi. We all ate you<br>two.  |
| 3. Jantanani, I ate you<br>all.                          |   | { Jántanisi. We two ate you<br>all. | { Jántanimi. We all ate you<br>all. |

*Participles.*

There are none of the impersonal form.

Participle of the future personated.

It is formed, as in the ordinary conjugation, by adding the appropriate particle or "me" to the forms of the indicative, e. g.

| <i>Singular.</i> | <i>Dual.</i> | <i>Plural.</i> |
|------------------|--------------|----------------|
| Janame.          | Jayesime.    | Jayemime.*     |

and so on through all the 9 forms above given in the indicative present.

Participle of the past personated. It is formed from the preterite by adding the "me," e. g.

|            |           |           |
|------------|-----------|-----------|
| Jantaname. | Jatesime. | Jatemime, |
|------------|-----------|-----------|

and so on through the above 9 forms of the preterite.

The sense of Jánáme is, thou who art the eaten of me; of jantaname, thou who wert the eaten of me, and so of all the rest.

*Gerunds.*

There are none whatever impersonated.

The personated forms are, as in the ordinary conjugation, four, two of the present and two of the past, and they are constructed, as before, by adding, respectively "na" and "ko" to the tense forms above, e. g.

Gerund of the future and present with the main verb in same time.

| <i>Singular.</i> | <i>Dual.</i> | <i>Plural.</i> |
|------------------|--------------|----------------|
| Janana.          | Jayesina.    | Jayemina,      |

and so on through all the 9 forms of the tense.

Same gerund with the main verb in the preterite.

| <i>Singular.</i> | <i>Dual.</i> | <i>Plural.</i> |
|------------------|--------------|----------------|
| Jantanana.       | Jatesina.    | Jatemina,      |

and so on through all the 9 forms above.

Gerund of the preterite with main verb in the past time.

| <i>Singular.</i> | <i>Dual.</i> | <i>Plural.</i> |
|------------------|--------------|----------------|
| Jantanako.†      | Jatesiko.    | Jatemiko,      |

and so on through the 9 tense forms.

---

\* The "y" is merely to keep the vowels apart.

† Samples of the above gerunds. Eating thee I shall fill my belly, jánana rúgna: Eating thee I filled my belly, jantana rúti: Having eaten thee I will go, janako lágna: Having eaten thee I slept, jántanako ipti: We all having eaten thee, were pleased, jtemiko gyérstako: We two, having eaten thee, will flee, jayesiko juksu-ksuku: We all, eating thee, fled, jatemina júkkatako.

2nd.—Special form, Thou—me.

## IMPERATIVE MOOD.

| <i>Singular of Agent.</i>                               | <i>Dual of Agent.</i>    | <i>Plural of Agent.</i>  |
|---------------------------------------------------------|--------------------------|--------------------------|
| 1. Jáyi,* Eat me thou or<br>let me be eaten by<br>thee. | } 1. Jáyisi.             | 1. Jáyini.               |
| <i>Dual of Object.</i>                                  |                          | <i>Dual of Object.</i>   |
| 2. Jasiki.                                              | 2. Jasikisi.             | 2. Jasikini.             |
| <i>Plural of Object.</i>                                | <i>Plural of Object.</i> | <i>Plural of Object.</i> |
| 3. Jaki.                                                | 3. Jakisi.               | 3. Jakini.               |

N. B.—This tallies with the ordinary passive as will be seen by reading the vertical columns of the one with the horizontal of the other.

## INDICATIVE MOOD.

*Present and Future Tense.*

|                                                         |              |              |
|---------------------------------------------------------|--------------|--------------|
| 1. Jáyi, (Thou eatest me,<br>or I am eaten by<br>thee.) | } 1. Jayisi. | 1. Jayini.   |
| 2. Jásiki.                                              |              | 2. Jasikini. |
| 3. Jáki.                                                | 3. Jakisi†   | 3. Jakini.   |

*Preterite.*

|              |                |                |
|--------------|----------------|----------------|
| 1. Jati.     | 1. Jatasi.     | 1. Jatini.     |
| 2. Jatasiki. | 2. Jatasikisi. | 2. Jatasikini. |
| 3. Jaktaki.  | 3. Jaktakisi.  | 3. Jaktakini.  |

N. B.—These agree respectively with the present and preterite of the passive save 1st, that there are here no inclusive forms, and 2nd, that the personal sign ni stands here in place of the passive mi.

## INFINITIVE MOOD.

Wanting: the ordinary infinitive is used with the separate pronouns in the instrumental and objective cases, gami go jácho.

## PARTICIPLES.

There are none of the impersonated kind.

The personated are formed, as usual, by the “me” suffix added to the tense forms, e. g.

| <i>Singular.</i>                           | <i>Dual.</i> | <i>Plural.</i> |
|--------------------------------------------|--------------|----------------|
| Jayime.                                    | Jayisime.    | Jayinime,      |
| and so on through the 9 tense forms.       |              |                |
| <i>Singular.</i>                           | <i>Dual.</i> | <i>Plural.</i> |
| Jatime.                                    | Jatisime.    | Jatinime,      |
| and so on through the 9 tense forms above. |              |                |

---

\* This is the formula of the passive, because the passive only requires that the first person be the patient, allowing the 2nd or 3rd to be the agent, and hence the indicative of this form so nearly tallies with that of the passive, jayi, eat me he or thou, &c.



The senses of Jayime and Jatime are, I who am the eaten of thee, and I who was the eaten of thee. The sense would be equally expressed by thou who art my eater, but eater jába is purely active, and cannot be admitted into an agento-objective verb.

## GERUNDS.

Unpersonated, there are none.

The personated of the present are formed as before by "na" suffixed to the several tense forms; and those of the past by "ko" similarly affixed; e. g. jáyina, játina, and jáyiko, jatiko, equivalent to thou eating me wilt do so and so, and did so and so; and thou having ate me wilt do, and did, so and so.

Paradigm of transitives in "to," not changing the "t" into "d."\*

Root, bré, to summon.

## ACTIVE VOICE.

*Imperative Mood.*

| <i>Singular.</i>         | <i>Dual.</i>             | <i>Plural.</i>           |
|--------------------------|--------------------------|--------------------------|
| 1. Bréto.                | 1. Brétise.              | 1. Brétine.              |
| <i>Dual of Object.</i>   | <i>Dual of Object.</i>   | <i>Dual of Object.</i>   |
| 2. Brétosi.              | 2. Brétisesi.            | 2. Brétinesi.            |
| <i>Plural of Object.</i> | <i>Plural of Object.</i> | <i>Plural of Object.</i> |
| 3. Brétomi.              | 3. Brétisemi.            | 3. Brétinemi.            |

## INDICATIVE MOOD.

*Present and Future Tense.**First person.*

|             |                                         |                                       |
|-------------|-----------------------------------------|---------------------------------------|
| 1. Brétú.   | 1. { Brétisa, incl.<br>Brétisuku, excl. | 1. { Brétiya, incl.<br>Brétika, excl. |
| 2. Brétusi. | 2. { Brétisasi.<br>Brétisukusi.         | 2. { Brétiyasi.<br>Brétikasi.         |
| 3. Brétúmi. | 3. { Brétisami.<br>Brétisukumi.         | 3. { Brétiyami.<br>Brétikami.         |

*Second person.*

|             |               |               |
|-------------|---------------|---------------|
| 1. Bréti.   | 1. Brétisi.   | 1. Brétini.   |
| 2. Brétisi. | 2. Brétisisi. | 2. Brétinsi.  |
| 3. Brétími. | 3. Brétisimi. | 3. Brétinimi. |

*Third person.*

|             |               |               |
|-------------|---------------|---------------|
| 1. Bréta.   | 1. Brétise.   | 1. Brétine.   |
| 2. Brétasi. | 2. Brétisesi. | 2. Brétinesi. |
| 3. Brétami. | 3. Brétisemi. | 3. Brétimémi. |

\* Those that change the "t" of the imperative into "d" in the indicative, do not take the incrementive "ti" of the dual and plural present, nor the double t of the preterite, and they have í, not ti, in the passive. These peculiarities are in fact confined to the transitives in unchanging "to," but are partially shared by the changing transitives and by the neuters.—See classification of verbs.

*Preterite.**First person.*

|                |                                               |                                             |
|----------------|-----------------------------------------------|---------------------------------------------|
| 1. Bréttong.   | 1. { Bréttasa, incl.<br>Bréttasuku, excl.     | 1. { Bréttayo, incl.<br>Brettako, excl.     |
| 2. Bréttongsi. | 2. { Bréttasasi, incl.<br>Bréttasukusi, excl. | 2. { Bréttayosi, incl.<br>Bréttakosi, excl. |
| 3. Bréttongmi. | 3. { Bréttasami, incl.<br>Bréttasukumi, excl. | 3. { Bréttayomi, incl.<br>Bréttakomi, excl. |

*Second person.*

|               |                |                |
|---------------|----------------|----------------|
| 1. Brétteu.   | 1. Bréttasi.   | 1. Brettani.   |
| 2. Bretteusi. | 2. Bréttasisi. | 2. Bréttanisi. |
| 3. Bretteumi. | 3. Bréttasimi. | 3. Brettanimi. |

*Third person.*

|              |                |                |
|--------------|----------------|----------------|
| 1. Brétta.   | 1. Bréttase.   | 1. Bréttame.   |
| 2. Bréttasi. | 2. Bréttasesi. | 2. Bréttamesi. |
| 3. Bréttami. | 3. Bréttasemi. | 3. Bréttamemi. |

## INFINITIVE MOOD.

Bré-cho, to call or to have called, &c.

## PARTICIPLES.

1st, in ba, Bré-ba, who calls or called.

2nd, in chome, Bréchome, { whom any one calls or will call.  
who will be called.

3rd, in na, Bré-na, { whom any one has called.  
who has been called.

4th, in me, Brétume, &c. { whom I call, or shall call.  
who will be called by me.

5th, in me, Bréttongme, &c. { whom I called.  
who has been called by me.

Gerund of the past, impersonal, Bréso or Bresomami.

(None of the present).

*Gerunds personated.*

1st, in na, Brétuna, &c. I calling (will do so and so.)

2nd, in na, Bréttongna, &c. I calling (did so and so.)

3rd, in ko, Brétuko, &c. I having called (will do so and so.)

4th, in ko, Bréttongko, &c. I having called (did so and so.)

## MIDDLE VOICE.

Breso, call thyself. Precisely like Jásó.

## PASSIVE VOICE.

*Imperative Mood.*

|             |                 |               |
|-------------|-----------------|---------------|
| 1. Bréti.   | 1. Brétisiki.   | 1. Brétiki.   |
| 2. Bretisi. | 2. Brétisikisi. | 2. Bretikisi. |
| 3. Brétini. | 3. Bretisikini. | 3. Brétikini. |

*Indicative Present.**First person.*

- |             |                                             |                                           |
|-------------|---------------------------------------------|-------------------------------------------|
| 1. Bréti.   | 1. { Brétiso, incl.<br>Brétisiki, excl.     | 1. { Brétiso, incl.<br>Brétiki, excl.     |
| 2. Brétisi. | 2. { Brétisosi, incl.<br>Brétisikisi, excl. | 2. { Brétisosi, incl.<br>Brétikisi, excl. |
| 3. Brétimi. | 3. { Brétisomi, incl.<br>Brétisikimi, excl. | 3. { Brétisomi, incl.<br>Brétikimi, excl. |

*Second person.*

- |             |               |               |
|-------------|---------------|---------------|
| 1. Bréte.   | 1. Brétisi.   | 1. Brétini.   |
| 2. Brétesi. | 2. Brétisisi. | 2. Brétinisi. |
| 3. Brétemi. | 3. Brétisimi. | 3. Brétinimi. |

*Third person.*

- |             |               |               |
|-------------|---------------|---------------|
| 1. Bréta.   | 1. Brétasi.   | 1. Brétami.   |
| 2. Brétise. | 2. Brétisesi. | 2. Brétisemi. |
| 3. Brétime. | 3. Brétimesi. | 3. Brétimemi. |

*Preterite.**First person.*

- |              |                                               |                                             |
|--------------|-----------------------------------------------|---------------------------------------------|
| 1. Brétti.   | 1. { Bréttaso, incl.<br>Bréttasiki, excl.     | 1. { Bréttaso, incl.<br>Bréttaki, excl.     |
| 2. Bréttisi. | 2. { Bréttasosi, incl.<br>Bréttasikisi, excl. | 2. { Bréttasosi, incl.<br>Bréttakisi, excl. |
| 3. Bréttimi. | 3. { Bréttasomi, incl.<br>Bréttasikimi, excl. | 3. { Bréttasomi, incl.<br>Bréttakimi, excl. |

*Second person.*

- |              |                |                |
|--------------|----------------|----------------|
| 1. Brétto.   | 1. Bréttasi.   | 1. Bréttani.   |
| 2. Bréttesi. | 2. Bréttasisi. | 2. Bréttanisi. |
| 3. Bréttemi. | 3. Bréttasimi. | 3. Bréttanimi. |

*Third person.*

- |              |                |                |
|--------------|----------------|----------------|
| 1. Brétta.   | 1. Brettasi.   | 1. Brettami.   |
| 2. Bréttase. | 2. Brettasesi. | 2. Brettasemi. |
| 3. Bréttame. | 3. Brettamesi. | 3. Brettamemi. |

## INFINITIVE MOOD.

Brócho, precisely as in the last verb.

## PARTICIPLES.

- 1st, in bá. Wanting, as in the last.  
 2nd, in chome. Bréchome, precisely as in the last.  
 3rd, in na. Bréna, ditto, ditto.  
 4th, in me. Brétime &c. as before.  
 5th, in me. Bréttime, &c. as before.

## GERUNDS.

- |             |           |                  |
|-------------|-----------|------------------|
| 1st, in na. | Brétina,  | } &c. as before. |
| 2nd, in na. | Bréttina, |                  |
| 3rd, in ko. | Brétiko,  |                  |
| 4th, in ko. | Bréttiko, |                  |

2nd of the object and instrument.

*Future, impersonal.*

Pichome, fit to come by (road), and fit for coming with (feet), and what any one will come by (road).

3rd the same, past time, impersonal.

Pina, what any one came by (road) and what he came with (feet).

Impersonated form of 2nd and 3rd.

It is formed by "me" added to the several forms of the tenses, pignáme, pitime, &c.\*

GERUNDS.

*That of present time.*

Pignana,† &c. with main verb in same time.

Pitina, &c. with main verb in preterite.

*That of past time.*

Pignako, &c. with main verb in future.

Pitiko, &c. with main verb in past.

All intransitives not having "so" in the imperative are conjugated as above except certain ones in "to," which I shall distinguish as neuters and which are conjugated as follows.

Paradigm of neuters in "to."

Root Bó, to flower. Imperative, Bó-to.

IMPERATIVE MOOD.

| <i>Singular.</i> | <i>Dual.</i> | <i>Plural.</i> |
|------------------|--------------|----------------|
| Bóto.            | Bótise.      | Bótime.        |

INDICATIVE MOOD.

*Present and Future.*

| <i>Singular.</i> | <i>Dual.</i>                         | <i>Plural.</i>                     |
|------------------|--------------------------------------|------------------------------------|
|                  | <i>First person.</i>                 |                                    |
| Bótú.            | { Bótisa, incl.<br>Bótusuku, excl.   | { Bótiya, incl.<br>Bótuka, excl.   |
|                  | <i>Second person.</i>                |                                    |
| Bóti.            | Bótisi.                              | Bótini.                            |
|                  | <i>Third person.</i>                 |                                    |
| Bóta.            | Bótise.                              | Bótime.                            |
|                  | <i>Preterite.</i>                    |                                    |
|                  | <i>First person.</i>                 |                                    |
| Bótti.           | { Bottasa, incl.<br>Bóttasuku, excl. | { Bóttayo, incl.<br>Bóttako, excl. |

\* e. g. Pignáme kholi, the feet which I come with, Pignáme lam, the road which I come by. Pitime kholi, the feet which I came with; Pitime lam, the road which I came by.

† e. g. Piguana pagua = I will come and do it, literally I coming will do it.

*Second person.*

Bótte.                      Bóttasi.                      Bóttani.

*Third person.*

Bótta.                      Bóttase.                      Bóttame.

## INFINITIVE MOOD.

## Bó-cho.

Participle of the agent in "ba,"

Bóba, what flowers, or will flower, or has flowered.

*N. B.*—The 2nd and 3rd participles in "chome" and "na" are wanting,\* and so also their derivatives in "me."

## GERUNDS.

|               |          |              |
|---------------|----------|--------------|
| 1st. Bótuna.  | Bótina.  | Bótana, &c.  |
| 2nd. Bóttuna. | Bottena. | Bóttana, &c. |
| 3rd. Bótuko.  | Bótiko.  | Bótako, &c.  |
| 4th. Bóttiko. | Bótteko. | Bóttako, &c. |

What, as opposed to the above, called neuters (see conjugation XI.) for distinction's sake, I have elsewhere called intransitives in "to," as Jito, Kháto, &c. (conjugation X.) are all regular and conjugated like the verb to come above given. In fact, all the so-called intransitives, whatever their sign, have one uniform conjugation, those in "so," merely interpolating the reflex sibilant, as may be seen by comparing the aforegone samples of both. But the neuters in "to," here ensampled by Bóto, are quite unique, leaning to the model of unchanging transitives with the same sign, for which see Biéto aforegone.

By comparing the above samples of complete conjugation with the summary view of the same subject which precedes it,† it will be seen that there is at bottom but one conjugation, because all transitives and intransitives follow the one general model with the material exception, however, of the singular indicative. Of that the various forms are therefore brought together in the classification of so-called conjugations; and it is only necessary to add that beyond the singular indicative of transitive verbs, there are no deviations from the one model of conjugating in the three voices. The whole force of conjugation is, it will be seen, thrown upon the actors, who do and suffer. Of the action itself there is little comparative heed, only two moods and two times being developed and the active and passive voices being perplexed. There are not in fact any inflexional or inherent verbal forms to express the various modifications of the action. Nevertheless these modifications, of course, have periphrastic means of expression, I shall call them moods, and now proceed to enumerate them.

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\* These participles can rarely be used with intransitive or neuter verbs, never with such of the latter as relate to the action of things. They imply an agent who produces that effect on a thing which these participles express relatively to future and past time respectively. Out of the vast number of intransitives enumerated elsewhere hardly a dozen make use of these participles. Some of these exceptions are bwakko, to speak, which gives bwangna ló,=spoken words. Bokko, to get up, whence bongna blocho,=bed, whence any one has risen: Niso, to sit, whence nisina-khosingba, the chair on which any one has sat, &c.

† To wit, "Classification of Verbs."

## SUBJUNCTIVE OR CONDITIONAL MOOD.

If, or should, I come.

*Indicative Present.**First person.*

| <i>Singular.</i> | <i>Dual.</i>                                 | <i>Plural.</i>                             |
|------------------|----------------------------------------------|--------------------------------------------|
| Pígna khedda.    | { Písa khedda, incl.<br>Písuku khedda, excl. | { Píya khedda, incl.<br>Píka khedda, excl. |

*Second person.*

|              |              |              |
|--------------|--------------|--------------|
| Píye khedda. | Písi khedda. | Píni khedda. |
|--------------|--------------|--------------|

*Third person.*

|            |              |              |
|------------|--------------|--------------|
| Pí khedda. | Píse khedda. | Píme khedda. |
|------------|--------------|--------------|

*Preterite.**First person.*

|                 |                                                  |                                                |
|-----------------|--------------------------------------------------|------------------------------------------------|
| Pígnáwa khedda. | { Písawa khedda, incl.<br>Písukuwa khedda, excl. | { Píyawa khedda, incl.<br>Píkuwa khedda, excl. |
|-----------------|--------------------------------------------------|------------------------------------------------|

*Second person.*

|                |                |                |
|----------------|----------------|----------------|
| Píyéwa khedda. | Písiwa khedda. | Píniwa khedda. |
|----------------|----------------|----------------|

*Third person.*

|              |                |                |
|--------------|----------------|----------------|
| Píwa khedda. | Písewa khedda. | Pímewa khedda. |
|--------------|----------------|----------------|

The negative is formed, as usual, by má prefixed.

Another negative, allied if not equivalent, is impersonal and substitutes the particle theum for khedda, adding the separate pronouns personal in lieu of the pronominal suffixes of verbs.

Should I not come, &amp;c.

*Present Tense.**First person.*

| <i>Singular.</i> | <i>Dual.</i>                                         | <i>Plural.</i>                         |
|------------------|------------------------------------------------------|----------------------------------------|
| Gó má pítheum.   | { Gósi má pítheum, incl.<br>Gósuku má pítheum, excl. | { Góyi má pítheum.<br>Góku má pítheum. |

*Second person.*

|                |                  |                  |
|----------------|------------------|------------------|
| Ga má pítheum. | Gasi má pítheum. | Gani má pítheum. |
|----------------|------------------|------------------|

*Third person.*

|                   |                         |                       |
|-------------------|-------------------------|-----------------------|
| Harem má pítheum. | Harem dausi má pítheum. | Harem dau má pítheum. |
|-------------------|-------------------------|-----------------------|

The preterite of this is formed by adding the "wa" above gone to the correlative part of the sentence, as, had I not come, he would not have come, gó má pítheum, harem má píwa.

In the present or future it is, gó má pítheum, harem má pí = should I come not, he will not come. In both forms of the conditional, wá, added to the indicative, takes the place of the regular preterite piti, pite, pita.

## CONTINGENT MOOD.

I may (perhaps) go.

It is expressed by the future in the alternative way, e. g. lágna má lágna, má teutu = I shall go, shall not go, I don't know = I may go, or perhaps I shall go, perhaps not, (root, lá, to go).

## POTENTIAL MOOD.

It is formed by adding ne to the root of any main verb (e. g. lá to go) and then subjoining the several conjugational forms of the subsidiary verb to can, which is a regular transitive in "po." This, not having been given above, shall be fully set down here, though it differ not much, save euphonically, from the foregone samples of transitives, especially bróto.\*

Root, chap, to can. Infinitive, chap-cho.

## Imperative.

| <i>Singular.</i>  | <i>Dual.</i>       | <i>Plural.</i>    |
|-------------------|--------------------|-------------------|
| 1. Láne chappo.   | 1. Láne chapse.    | 1. Láne chamne.   |
| 2. Láne chapposi. | 2. Láne chapseasi. | 2. Láne chamnesi. |
| 3. Láne chappomi. | 3. Láne chapsemi.  | 3. Láne chamnemi. |

## Indicative present.

## First person.

|                  |                                                       |                                                     |
|------------------|-------------------------------------------------------|-----------------------------------------------------|
| 1. Láne chabu.   | 1. { Láne chapsa, incl.<br>{ Láne chapsuku, excl.     | 1. { Láne chamya, incl.<br>{ Láne chapka, excl.     |
| 2. Láne chabusi. | 2. { Láne chapasi, incl.<br>{ Láne chapsukusi, excl.  | 2. { Láne chamyasi, incl.<br>{ Láne chapkasi, excl. |
| 3. Láne chabumi. | 3. { Láne chapsami, incl.<br>{ Láne chapsukumi, excl. | 3. { Láne chamyami, incl.<br>{ Láne chapkami, excl. |

## Second person.

|                  |                   |                   |
|------------------|-------------------|-------------------|
| 1. Láne chabi.   | 1. Láne chapsi.   | 1. Láne chamni.   |
| 2. Láne chabisi. | 2. Láne chapsisi. | 2. Láne chamnisi. |
| 3. Láne chabimi. | 3. Láne chapsimi. | 3. Láne chamnimi. |

## Third person.

|                  |                    |                   |
|------------------|--------------------|-------------------|
| 1. Láne chaba.   | 1. Láne chapse.    | 1. Láne chamme.   |
| 2. Láne chabasi. | 2. Láne chapseasi. | 2. Láne chammesi. |
| 3. Láne chabami. | 3. Láne chapsemi.  | 3. Láne chammemi. |

## Preterite.

## First person.

|                     |                                                           |                                                         |
|---------------------|-----------------------------------------------------------|---------------------------------------------------------|
| 1. Láne chaptong.   | 1. { Láne chaptasa, incl.<br>{ Láne chaptasuku, excl.     | 1. { Láne chaptayo, incl.<br>{ Láne chaptako, excl.     |
| 2. Láne chaptongsi. | 2. { Láne chaptasasi, incl.<br>{ Láne chaptasukusi, excl. | 2. { Láne chaptayosi, incl.<br>{ Láne chaptakosi, excl. |
| 3. Láne chaptongmi. | 3. { Láne chaptasami, incl.<br>{ Láne chaptasukumi, excl. | 3. { Láne chaptayomi, incl.<br>{ Láne chaptakomi, excl. |

\* Compare chap-cho, chap-po, chab-u, chab-i, chab-a, chap-tong, cham-i with bré-cho, bré-to, brét-u, brét-i, brét-a, brét-tong, bré-ti; and observe in regard to the former that its radical p becomes b before a vowel and m before a nasal (n, m), but remains p before a sibilant or hard dental. It is so in all transitives in po, of all which chappo is a perfect sample.

*Second person.*

- |                    |                     |                     |
|--------------------|---------------------|---------------------|
| 1. Láne chapteu.   | 1. Láne chaptasi.   | 1. Láne chaptani.   |
| 2. Láne chapteusi. | 2. Láne chaptasisi. | 2. Láne chaptanisi. |
| 3. Láne chapteumi. | 3. Láne chaptasemi. | 3. Láne chaptanimi. |

*Third person.*

- |                   |                      |                      |
|-------------------|----------------------|----------------------|
| 1. Láne chapta.   | 1. Láne chaptase.    | 1. Láne chaptame.    |
| 2. Láne chaptasi. | 2. Láne chaptasesi.  | 2. Láne chaptamesi.  |
| 3. Láne chaptami. | 3. Láne chaptaseimi. | 3. Láne chaptameimi. |

## INFINITIVE.

Láne chapcho.

*Participles.*

- |                                   |                                                            |
|-----------------------------------|------------------------------------------------------------|
| 1st in "ba," Láne chapba.         | } Impersonal as before.                                    |
| 2nd in "choine," Láne chapchome.  |                                                            |
| 3rd in "na," Láne chamna.         | } Personated and formed by adding "me" to the tense forms. |
| 4th in "me," Láne chabume, &c.    |                                                            |
| 5th in "me," Láne chaptongme, &c. |                                                            |

*Gerunds.*

- |                                   |                                                                                                                                                       |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1st in "na," Láne chabuna, &c.    | } Personated all and constructed as before by adding na, or ko, to the several tense forms. The impersonate past gerund is Láne chapso or chapsomami. |
| 2nd in "na," Láne chaptongna, &c. |                                                                                                                                                       |
| 3rd in "ko," Láne chabuko, &c.    |                                                                                                                                                       |
| 4th in "ko," Láne chaptongko, &c. |                                                                                                                                                       |

*Middle Voice.*

Lána chamso, and so on, precisely as in the verbs to eat and to summon.

## PASSIVE VOICE.

*Imperative Mood.*

- |                   |                     |                   |
|-------------------|---------------------|-------------------|
| 1. Láne chamyi.   | 1. Láne chapsiki.   | 1. Láne chapki.   |
| 2. Láne chamyisi. | 2. Láne chapsikisi. | 2. Láne chapkisi. |
| 3. Láne chamyini. | 3. Láne chapsikini. | 3. Láne chapkimi. |

*Indicative present.**First person.*

- |                   |                                                     |                                                   |
|-------------------|-----------------------------------------------------|---------------------------------------------------|
| 1. Láne chamyi.   | 1. { Láne chapso, incl.<br>Láne chapsiki, excl.     | 1. { Láne chapso, incl.<br>Láne chapki, excl.     |
| 2. Láne chamyisi. | 2. { Láne chapsosi, incl.<br>Láne chapsikisi, excl. | 2. { Láne chapsosi, incl.<br>Láne chapkisi, excl. |
| 3. Láne chamyini. | 3. { Láne chapsomi, incl.<br>Láne chapsikimi, excl. | 3. { Láne chapsomi, incl.<br>Láne chapkimi, excl. |

*Second person.*

- |                   |                   |                   |
|-------------------|-------------------|-------------------|
| 1. Láne chamye.   | 1. Láne chapsi.   | 1. Láne chamni.   |
| 2. Láne chamyesi. | 2. Láne chapsisi. | 2. Láne chamnisi. |
| 3. Láne chamyemi. | 3. Láne chapsimi. | 3. Láne chamnimi. |

*Third person.*

- |                 |                   |                   |
|-----------------|-------------------|-------------------|
| 1. Láne chaba.  | 1. Láne chabasi.  | 1. Láne chabami.  |
| 2. Láne chapse. | 2. Láne chapsesi. | 2. Láne chapsemi. |
| 3. Láne chamme. | 3. Láne chammesi. | 3. Láne chammemi. |



*Preterite.**First person.*

- |                   |                                                     |                                                   |
|-------------------|-----------------------------------------------------|---------------------------------------------------|
| 1. Láne chapti.   | 1. { Láne chaptaso, incl.<br>Láne chaptasiki, excl. | 1. { Láne chaptaso, incl.<br>Láne chaptaki, excl. |
| 2. Láne chaptisi. | 2. { Láne chaptasosi.<br>Láne chaptasikisi.         | 2. { Láne chaptasosi.<br>Láne chaptakisi.         |
| 3. Láne chaptimi. | 1. { Láne chaptasomi.<br>Láne chaptasikimi.         | 3. { Láne chaptasomi.<br>Láne chaptakimi.         |

*Second person.*

- |                   |                     |                     |
|-------------------|---------------------|---------------------|
| 1. Láne chapte.   | 1. Láne chaptasi.   | 1. Láne chaptam.    |
| 2. Láne chaptesi. | 2. Láne chaptasisi. | 2. Láne chaptamisi. |
| 3. Láne chaptemi. | 3. Láne chaptasimi. | 3. Láne chaptamimi. |

*Third person.*

- |                   |                     |                     |
|-------------------|---------------------|---------------------|
| 1. Láne chapta.   | 1. Láne chaptasi.   | 1. Láne chaptami.   |
| 2. Láne chaptase. | 2. Láne chaptasesi. | 2. Láne chaptasemi. |
| 3. Láne chaptame. | 3. Láne chaptamesi. | 3. Láne chaptamemi. |

*Infinitive.*

It is wanting as in all the passives.

*Participles.*

- 1st in "ba," wanting.  
 2nd in "chome," Láne chapchome.  
 3rd in "na," Láne chamna.  
 4th in "me," Láne chamyime, &c.  
 5th in "me," Láne chaptime, &c.

*Gerunds.*

- 1st in "na," Láne chamyina, &c.  
 2nd in "na," Láne chaptina, &c.  
 3rd in "ko," Láne chamyiko, &c.  
 4th in "ko," Láne chaptiko, &c.

*Remark.*—The precedent in given in full, 1st, because it affords a sample of transitives, in "po," 2nd, because it demonstrates that these so-called moods are merely compound verbs which (like the case signs) can be multiplied ad infinitum, but have little to do with grammar.

Duty, necessity; I must, or ought.

It is expressed by the impersonal use of the verb dyúm to become, put after the main verb in the regular infinitive with the separate objective pronoun preceding both.

*Imperative wanting.*

## INDICATIVE MOOD.

| <i>Singular.</i> | <i>Dual.</i>                                         | <i>Plural</i>                          |
|------------------|------------------------------------------------------|----------------------------------------|
| Gó lácho dyum.*  | { Gósi lácho dyum, incl.<br>Gósuku lácho dyum, excl. | { Góyi lácho dyum.<br>Góku lácho dyum. |

\* Quasi mihi ire fit, i. e. decet vel necesse est, in Khas, manlai janu parcha.

*Second person.*

Ga lácho dyum.

Gasi lácho dyum.

Gani lácho dyum.

*Third person.*

Harem lácho dyum.

Haremdausi lácho dyum.

Haremdau lácho dyum.

*Preterite.**First person.*

Gó lácho dyumta.

{ Gósi lácho dyumta.  
Gósuku lácho dyumta.{ Góyi lácho dyumta.  
Góku lácho dyumta.*Second person.*

Ga lácho dyumta.

Gasi lácho dyumta.

Gani lácho dyumta.

*Third person.*

Harem lácho dyumta.

Haremdausi lácho dyumta.

Haremdau lácho dyumta.

## OPTATIVE MOOD.

Wish, desire.

*Indicative present.**First person.**Singular.**Dual.**Plural.*

1. Wa lála dwáng.

{ Isi lála dwáng, incl.  
Wasi lála dwáng, excl.{ Ike lála dwáng.  
Wake lála dwáng.*Second person.*

2. I lála dwáng.

Isi lála dwáng.

Ini lála dwáng.

*Third person.*

3. A lála dwáng.

Axi lála dwáng.

Axi lála dwáng.

*Preterite.*

1. Wá lála dwakta.

{ Isi lála dwakta, incl.  
Wasi lála dwakta, excl.{ Ike lála dwakta, incl.  
Wake lála dwakta, excl.

2. I lála dwakta.

Isi lála dwakta.

Ini lála dwakta.

3. A lála dwakta.

Axi lála dwakta.

Axi lála dwakta.

Formed of the conjunct possessives, of lála, a verbal noun from lá, to go, and of dwáng, dwakta, the 3rd person of the intransitive dwakko, to be desirous, present and preterite used impersonally.

## PRECATIVE MOOD.

Oh! that I might go.

Let me go.

*Imperative.**Singular.**Dual.**Plural.*

1. Lácho gíyi.

1. Lácho gísiki.

1. Lácho gíki.

2. Lácho gíyisi.

2. Lácho gísikisi.

2. Lácho gíkisi.

3. Lácho gíyini.

3. Lácho gíkisi.

3. Lácho gíkimi.

*Indicative present.**First person.*

|                  |                                         |                                       |
|------------------|-----------------------------------------|---------------------------------------|
| 1. Lácho gíyi.   | 1. \| Lácho gíso.<br>\| Lácho gísiki.     | 1. \| Lácho gíso.<br>\| Lácho gíki.     |
| 2. Lácho gíyisi. | 2. \| Lácho gísuki.<br>\| Lácho gísikisi. | 2. \| Lácho gísosi.<br>\| Lácho gíkisi. |
| 3. Lácho gíyimi. | 3. \| Lácho gísomi.<br>\| Lácho gísikimi. | 3. \| Lácho gísomi.<br>\| Lácho gíkimi. |

And so on conjugating the transitive *gíwo*, to give, in the passive voice, like the passive of *jáwo*, to eat aforegone. Lácho gíyi = let me go, give me to go. But observe that in order to say let *him* go, you must use the active voice, as below.

*Singular.*

Let me go, lácho gíyi.  
Let him go, lácho gíwo.

*Dual.*

Let us two go, lácho gísiki.  
Let them two go, lácho gíwosi.

*Plural.*

Let us all go, lácho gíki.  
Let them all go, lácho gíwomi.

*Remark.*—If to these forms we add those of the middle voice. S. Lácho gíso. D. Lácho gísiche. P. Lácho gísine, we have a good clue to the character of the three voices in this language which are based upon the idea of me, the speaker, being the exponent of the passive; of self, the spoken to, being that of the middle; and of him, or her, or it, the spoken of, being that of the active voice, Gí-wo = give him: Gí-so = give thyself: Gí-yi = give me, are respectively the starting points of the active, middle and passive voices.

## INTERROGATIVE MOOD.

It resembles the indicative, lágná I shall go, or shall I go?

## PROHIBITIVE AND NEGATIVE MOOD.

There is no separate form of the negative verb as in Dravidian tongues, nor even any prohibitive particle distinct from the negative.

Má prefixed expresses verbal negation and prohibition and also nominal privation, e. g. Má jáwo, eat not. Má jágna, I do not eat. Má neuba, not good = bad.

## INCEPTIVE MOOD.

It is formed by subjoining to the ordinary infinitive form (*cho*) of the main verb, the subsidiary intransitive verb *prénso*, to begin, or the transitive *páwo*, to do, to make; e. g. túcho páwo, begin to drink; túcho papta, he began to drink; jácho prénso, begin to eat; jácho, prénsigna, I begin to eat.

## FINITIVE MOOD.

It is formed as above, but substituting for *páwo* or *prénso* the transitive *theumo* (conficio). e. g. jácho theumo, finish eating, jácho theumtong, I have done eating. Sometimes “ne,”\* replaces the infinitival “cho” of the main verb.

\* The infinitival sign varies, not always intelligibly. Where purpose is meant “th” is the sign, as játha láti, I went to drink, i. e. for the purpose of drinking. Where commencement and end are expressed, “ne” is more frequent than “cho” jáne prénsigna, jáne theumu, I shall begin to eat, and I shall have done eating. So also where wish is expressed jáne dwaktong, I wished to eat. But *cho* is the common form and always used alone, as Jácho má jácho ágyem neu, which is better to eat or not to eat.

*N. B.*—The neuters *ryipo* (*desino*) and *dyumo* (*ño*), to be ended or to end cannot be used in this way and *prénso*, to be begun or to begin (self) is much rarer in such use than *páwo*. *Ryipcho páwa* is, it nears its end, literally it makes to an end, or to be ended.

### CONTINUATIVE MOOD.

It is formed by adding *sógno* (sense doubtful) to the root of the main verb and therewith conjugating the intransitive verb *bwakko*, to remain (see conj. III), e. g. continue eating, *jásogno bwakku*. *N. B.*—The definite present and past are also thus expressed.

#### Imperative.

| <i>Singular.</i>                                          | <i>Dual.</i>                 | <i>Plural.</i>           |
|-----------------------------------------------------------|------------------------------|--------------------------|
| <i>Jáso-gno bwakko</i> (eat continuously or keep eating.) | <i>Jáso-gno bwakse incl.</i> | <i>Jáso-gno bwangne.</i> |

#### Indicative present.

##### First person.

|                          |                                |                         |
|--------------------------|--------------------------------|-------------------------|
| <i>Jáso-gno bwangna.</i> | <i>Jásogno bwaksa, incl.</i>   | <i>Jásogno bwangna.</i> |
|                          | <i>Jásogno bwaksuku, excl.</i> | <i>Jásogno bwakka.</i>  |

##### Second person.

|                         |                        |                         |
|-------------------------|------------------------|-------------------------|
| <i>Jasogno bwangye.</i> | <i>Jasogno bwaksi.</i> | <i>Jasogno bwangni.</i> |
|-------------------------|------------------------|-------------------------|

##### Third person.

|                       |                        |                         |
|-----------------------|------------------------|-------------------------|
| <i>Jasogno bwang.</i> | <i>Jasogno bwakse.</i> | <i>Jasogno bwamme.*</i> |
|-----------------------|------------------------|-------------------------|

#### Preterite.

##### First person.

|                                                            |                                  |                          |
|------------------------------------------------------------|----------------------------------|--------------------------|
| <i>Jasogno bwakti</i> (I ate continuously or I was eating, | <i>Jasogno bwaktasa, incl.</i>   | <i>Jasogno bwaktayo.</i> |
|                                                            | <i>Jasogno bwaktasuku, excl.</i> | <i>Jasogno bwaktako.</i> |

##### Second person.

|                        |                          |                          |
|------------------------|--------------------------|--------------------------|
| <i>Jasogno bwakte.</i> | <i>Jasogno bwaktasi.</i> | <i>Jasogno bwaktani.</i> |
|------------------------|--------------------------|--------------------------|

##### Third person.

|                        |                          |                          |
|------------------------|--------------------------|--------------------------|
| <i>Jasogno bwakta.</i> | <i>Jasogno bwaktase.</i> | <i>Jasogno bwaktame.</i> |
|------------------------|--------------------------|--------------------------|

#### Infinitive.

*Jasogno bwakcho.*

#### Participles.

1st in *ba*, *Jasogno bwakpa* (*ba*). (Surd requires surd).

2nd in *chome*, *Jasogno bwakchome.*

3rd in *na*, *Jasogno bwangna.*

4th in *me*, *Jasogno bwangname*, &c. 11 forms, ut supra.

5th in *me*, *Jasogno bwaktime*, &c. ditto ditto.

\* Observe the change of the radical *k* into *ng* and *m*, *bwak-ko*, *bwang-gna*, *bwam-me*. It is constant in all verbs neuter in "*ko*."

## Gerunds.

1st in na, Jasogno bwanggnana, &c. 11 forms.

2nd in na, Jasogno bwaktina, &c. ditto.

3rd in ko, Jasogno bwanggnako, &c. ditto.

4th in ko, Jasogno bwaktuko, &c. ditto.

*Remark.*—The above is given in full as an exemplar of intransitives in “ko.” The transitives of the same conjugation (III.), have the like *euphonic* changes, and for the rest their conjugation may be determined by analogy with the help of the premises already supplied. The indicative present singular alone varies and that is set down in the classification of verbs. The radical “k” becomes “g” in the active voice, and “ng” in the passive and causal, e. g. pók-ko, póg-u, póng-yi, póng-páto.

## ITERATIVE MOOD.

Raise repeatedly, pókko, mókho, bwákko.

It is formed by adding to the imperative of the main verb, whether transitive or intransitive, the word mókho (sense unknown) and to it subjoining the verb bwakcho, to remain, as in the last mood to which this is very nearly allied in sense. There however we have compound conjugation according to the sense of the primary and secondary verbs which are both conjugated with mókho, immutable, between them. e. g.

|                                           |                                            |
|-------------------------------------------|--------------------------------------------|
| Ipo mókho bwákko, sleep repeatedly.       | Pókko mókho bwákko, raise repeatedly.      |
| Imgna mókho bwanggna, I sleep repeatedly. | Pógu mókho bwanggna, I raise repeatedly.   |
| Ipti mókho bwakti, I slept repeatedly.    | Póktong mókho bwakti, I raised repeatedly. |

And so on through the whole of the intransitive conjugation in “po” (VI.) and of the transitive in “ko” (III.) The definite sense of the present and preterite. I am sleeping, I was sleeping, I am raising, I was raising, is likewise thus expressed.

*Conjugation with auxiliary substantive verb and participle.*

Of the 4 substantive verbs, ká, khé, gnó, and bwá, the three first express essence and entity; the last, presence, being in a certain place, corresponding respectively to the Khas ho and cha, and to the Newáti kha and du, or chóna. Of the Báking 4 the last or bwá is alone used as an auxiliary and it is compounded with the (apparent) participle or gerund aforegone, or jasogno to procure, definite present (or future) and past tenses of any and every verb in the manner there seen, e. g. písogno bwanggna, I am coming: pí-ogno bwakti, I was coming: teupsogno bwanggna, I am boating: teupsogno bwakti, I was beating.

*Remark.*—Jásogno, which gives the continuative and the definite form of the tenses above, seems to spring from the impersonal past gerund in “so,” jaso vel jasomami. But that is not clear, though it be so that, whatever else jasogno is, it is a form of every verb useable with the auxiliary in conjugation.

Jásogno bwanggna = I am eating.

Jásogno bwakti = I was eating.

Písogno bwanggna = I am coming.

Písogno bwakti = I was coming.

Brésogno bwanggna = I am summoning.

Brésogno bwakti = I was summoning.

*Compound verbs with each element conjugated.*

Jwagdíwo, to arrive.\*

## IMPERATIVE MOOD.

| <i>Singular.</i> | <i>Dual.</i> | <i>Plural.</i> |
|------------------|--------------|----------------|
| Jwagdíwo.        | Jwagdise.    | Jwagdine.      |

*Indicative present.*

| <i>Singular.</i> | <i>Dual.</i>                               | <i>Plural.</i>                            |
|------------------|--------------------------------------------|-------------------------------------------|
| Jwanggnadína.    | { Jwaksadína, incl.<br>Jwaksudísuku, excl. | { Jwangyadiya, incl.<br>Jwakkadika, excl. |
| Jwanggnedíye.    | Jwakgidísi.                                | Jwangnidíni.                              |
| Jwangnidí.       | Jwaksedíse.                                | Jwangmedíme.                              |

*Preterite.*

| <i>First person.</i> | <i>Second person.</i>                            | <i>Third person.</i>                   |
|----------------------|--------------------------------------------------|----------------------------------------|
| Jwaktidíti.          | { Jwaktasadíta, incl.<br>Jwaktasudítasuku, excl. | { Jwaktayodíntayo.<br>Jwaktakodíntako. |
| Jwaktedíte.          | Jwaktasidítasi.                                  | Jwaktanidíntani.                       |
| Jwaktadíta.          | Jwaktasedítase.                                  | Jwaktamedímtame.                       |

## INFINITIVE MOOD.

Jwakchodícho.

*Participles.*

- 1st in ba, Jwakpadíba.  
 2nd in chome, Jwakchodíchome, &c.  
 3rd in na, Jwangnadína, &c.  
 4th in me, Jwanggnamedíname, &c.  
 5th in me, Jwaktimedítme, &c.

*Gerunds.*

Impersonal of the present. None.  
 Impersonal of the past.  
 Jwaksomamidísomani or Jwaksodíso.

\* Jwákko, is an intransitive in "ko" meaning to arrive, and it can be conjugated separately; but, with that love of specialization which is so characteristic of Kiranti verbs, it is always used in conjunction with the verb to come (píwo) or to go (díwo). Jwagdíwo as a single word can be also so conjugated. The remarkable thing is that each verb of the compound can be conjugated.

*Personated Gerunds.*

- |                      |            |
|----------------------|------------|
| 1st, Jwanggnadígana, | } present. |
| 2nd, Jwaktidítina,   |            |
| 3rd, Jwanggnadígako, | } past.    |
| 4th, Jwaktadítako,   |            |

*Causal Verbs.\**

All verbs whatever can be made causal by adding to their root the transitive verb páto, from pať to do or make. But pá makes its regular transitive in "wo," páwo. Páwo is do; páto, do for him, on his behalf; and this leads me to observe that every transitive verb, save those in "to," has the following six forms.

1. Teupo, strike him, active transitive in "po."
2. Teum-so, strike thyself, reflex transitive, or middle in "so."
3. Teum-yi, strike me, passive in "i."
4. Teup-to, strike it for him, active transitive in "to."
5. Teum-so, strike it for thyself, middle in "so."
6. Teupti, strike it for me, "passive in "ti."

So also pá, to do, has pá-wo. páso, páyi; páto, páso and pati: and kwó, to see, has kwógno, kwóso, kwóyi; kwoto, kwoso and kwoti: and pok, to raise has pokko, pokso. pongyi; pokto, pokso, pokti; and in like manner every other transitive, except those in "to" as the primary form. It is the secondary form of the transitive of the verb to make, or páto, which is used for constructing causals, but yet it takes the passives in "i," not "ti," when thus employed, though, when used separately, it assumes its regular form in "ti"—an anomaly, like that of the use of the reflex or middle voice in one form and two senses (2.5).

But besides the regular causal formed by páto added to the root of the main verb (e. g. kwopáto, cause to see), there are other means of constructing causals which shall be first mentioned before proceeding to exhibit the conjugation of the former.

These means are, 1st the hardening of the initial consonant of an intransitive, as—

|                    |                                 |
|--------------------|---------------------------------|
| Dokko, fall.       | Tokko, cause to fall.           |
| Dyúmno, become.    | Thyúmno, cause to become.       |
| Gúkko, be crooked. | Kúkko, crooken or make crooked. |

\* Besides its ordinary use, the causal form of the verb is frequently used, especially in its middle voice, as a passive. Thus, japáso is, be thou eaten, or suffer thyself to be eaten, implying voluntariness on the part of the patient; and so lémpáso is let thyself be kissed. All three voices, however, can be used thus and frequently are so, whenever the complex pronominalization of the primary verb causes embarrassment. The passive use of the causal is very common in Himalaya, and is often, as in Newári, the only substitute for a passive. This is not wonderful in so crude a tongue as Newári: it is so, however, in the Kiránti language which possesses the great secret of the most refined conjugation in its neat personal suffixes and its power of euphonic compounding. Owing however to too much attention to the agents, and too little to the action, the Kiránti verb with all its constructive richness on one side, shows equal poverty on another, and hence the passive use of the causal form.

† The root pá, pí in Váyu, an allied Himalayan tongue, is the same as the Dravidian causative.

Gíkko, be born.  
 Jíto, be born.  
 Bokko, get up.  
 Bukko, be burst.

Kíkko, beget or give birth to.  
 Chíto, tear.  
 Pokko, raise, or make get up.  
 Pukko, burst.

2nd, by dropping the intransitive sign whatever it be, and substituting the transitive sign in "to," or "ndo" (do).

Píwo, come.  
 Ráwo, come.  
 Díwo, go.  
 Láwo, go.  
 Kúwo, come up.  
 Yúwo, come down.  
 Dwakko, be desirous or long.  
 Túgno, drink.  
 Wogno, issue.  
 Glúgno, enter.  
 Cháyínso, learn.  
 Níso, sit.  
 Khleuso, lie hid.

Píto, bring.  
 Ráto, bring.  
 Díto, take away.  
 Láto, take away.  
 Kúto, bring up.  
 Yúto, bring down.  
 Dwakto, desire it, or long for it.  
 Túndo, cause to drink.  
 Wondo, extract.  
 Glúndo, insert.  
 Cháyindo, teach, i. e. cause to learn.  
 Níto, set down.  
 Khleundo, hide it.

I need not point out what an important analogy with the Dravidian tongues the first (nay, both) of these two processes presents, but I may add that this analogy is in perfect keeping with the further habit of this Himálayan language of hardening or doubling the indicative present sign by way of making a preterite, as

Myelda, he is sleepy.  
 Sáda, he kills.  
 Kwáda, he puts on the fire.  
 Gramda, he hates.  
 Teuba, he strikes.  
 Bréta, he summons.  
 Khleuta, he conceals.  
 Soda, he tells it.

Myelta, he was sleepy.  
 Sáta, he killed.  
 Kwáta, he put on the fire.  
 Gramta, he hated.  
 Teupta, he struck.  
 Bréttá, he summoned.  
 Khleutta, he concealed.  
 Sotta, he told it.

Add to these analogies the common habit of Báhing and Támil of annexing the conjugational sign to the imperative and that that sign is indifferently applied to intransitives and transitives (leaving the style of the indicative to difference them); and further that the conjunct pronominalization of their verbs and nouns is by prefixing in regard to the nouns and suffixing in regard to the verbs,\* not to mention several other analogies cited in the sequel, and Messrs. Muller and Caldwell will find it difficult to maintain their assertion that there is nothing Dravidian in the structure of the Himálayan tongues!

\* Teub-u, I strike  
 Teub-i, Thou strikest  
 Teub-a, He strikes  
 Pog-u, I raise  
 Pog-i, Thou raisest  
 Pog-a, He raises  
 Bret-u, I summon  
 Bret-i, Thou summon'st  
 Bret-a, He summons  
 Wa popo, My uncle.  
 I popo, Thy uncle.  
 A popo, His uncle.  
 Wagu, My hand.  
 I gu, Thy hand.  
 A gu, His hand.  
 Wa daubo, Myself.  
 I daubo, Thyself.  
 A daubo, Himself.

{ Remark.—<sup>6</sup>Wa, i, a, the pronominal adjuncts are perfectly distinct from the separate pronouns; and, wa being — u, the adjuncts of verb and noun tally to identity. Here, then, is the alleged diagnosis of Dravidianum more fully developed than in any Dravidian tongue.



Many verbs, identical in form, in the imperative yet differ in sense as *Khiwo*, n. tremble and *khiwo*, a. quarrel, *úto*, n. fall; *úto*, a. fell. Many, again, materially change their sense in passing into the causal or transitive form from the intransitive or neuter; and, lastly, the causal form of neuters and of transitives, though very generally of the normal construction in *páto* added to the root (*ipo*, sleep; *impáto*, cause to sleep), yet in the case of many verbs of both sorts in "po" and in "gno," is not so, the alteration being effected by changing their sign into the transitive "to" vel "do" sign, as *ipo*, sleep; *ipto*, cause to sleep (a synonyme of *impáto*); *túgno*, drink, *túndo*. (= *túpáto*) cause to drink. When the sense is much altered in such transition, the derivative causal of a neuter is constantly regarded as an independant word and primitive verb, and the neuter takes the normal causal form, thus *láwo*, n. = go, has *láto* for its causal: but, *láto* being used to signify take away, *lápáto* is made to express the precise sense of cause to go.

All this shows, when taken in connexion with the general transformability of all transitives not primitively in "to" into that form, the pre-eminent transitive and preterite character of that widely diffused sign.

It also shows how apt causal is to be equivalent to transitive—another widely prevailing Turanian trait, and one harmonising with the almost identity of neuter and intransitive. And here we may remark another special characteristic common to the *Himálayan* and *Dravidian* tongues, viz. double causation. Thus in *Báling* (and it is the same in many others of our tongues) *ipo*, sleep, *impáto*, cause to sleep; *impápáto*, cause to cause to sleep. *Gíkko*, be born; *Kíkko* or *Gingpáto*, cause to be born; *Kingpáto* or *Gingpapáto*, cause to cause to be born; to which we may add, *Kingpápáto* expressing causation in the *third* degree from the primitive *gíkko*: and the like holds good with regard to every neuter undergoing a similar change with *Gíkko*.

I proceed now to exhibit an exemplar of the normal causative form of verbs, taking the instance of the verb to eat. Root, *Já*. Causal transitive, *Jápáto*. Causal reflex, *Jápáso*. Causal passive, *Jápáyi*. The prefixed root does not affect the grammatical form of the auxiliaries save as above stated. *Páto* therefore in this combination will afford a sample of all transitives in "to" which change the "p" into "d." Of the unchanging transitives in "to" I have given a model in *Bréto*. I shall here give *Páto* in full in its combination with *Já*, as a sample of the changing conjugation in "p" (see conjugation X.) merely premising that *páso*, as an intransitive in "so" (see conjugation XIII.) and *páyi* as a passive in "i" (*yi* to keep the vowels apart merely)\* have already been given in full, as also the passive in "ti," (vide *Bréto*).

#### Paradigm of a causal verb.

##### ACTIVE VOICE.

##### Imperative Mood.

| Singular of Agent.  | Dual of Agent.      | Plural of Agent.     |
|---------------------|---------------------|----------------------|
| 1. <i>Jápáto.</i>   | 1. <i>Jápáse.</i>   | 1. <i>Jápáne.</i>    |
| Dual of Object.     | Dual of Object.     | Dual of Object.      |
| 2. <i>Jápátosi.</i> | 2. <i>Jápásesi.</i> | 2. <i>Jápánesi.</i>  |
| Plural of Object.   | Plural of Object.   | Plural of Object.    |
| 3. <i>Jápátomi.</i> | 3. <i>Jápásemi.</i> | 3. <i>Jápáne mi.</i> |

\* M also requires the y, for example, *teum-yi*, strikes me he or thou, = I am struck, see remarks *aforegone*. It is because the *agent* may be he or thou (any one) in the passive, that the passive runs so near parallel with the 2nd special form of the verb.

## INDICATIVE MOOD.

*Present and Future Tense.*

| <i>First person.</i> |                                           |                                         |
|----------------------|-------------------------------------------|-----------------------------------------|
| <i>Singular.</i>     | <i>Dual.</i>                              | <i>Plural.</i>                          |
| 1. Japadu.           | 1. { Jápása, incl.<br>Jápasúkú, excl.     | 1. { Jápáva, incl.<br>Jápáka, excl.     |
| 2. Jápádusi.         | 2. { Jápásasi, incl.<br>Jápásúkúsi, excl. | 2. { Jápáyosi, incl.<br>Jápákosi, excl. |
| 3. Jápádumi.         | 3. { Jápásami, incl.<br>Jápásúkúmi, excl. | 3. { Jápáyomi, incl.<br>Jápákomi, excl. |

| <i>Second person.</i> |              |                |
|-----------------------|--------------|----------------|
| <i>Singular.</i>      | <i>Dual.</i> | <i>Plural.</i> |
| 1. Jápádi.            | 1. Jápási.   | 1. Jápáni.     |
| 2. Jápádusi.          | 2. Jápásisi. | 2. Jápánisi.   |
| 3. Jápádumi.          | 3. Jápásumi. | 3. Jápánimi.   |

| <i>Third person.</i> |              |                |
|----------------------|--------------|----------------|
| <i>Singular.</i>     | <i>Dual.</i> | <i>Plural.</i> |
| 1. Jápáda.           | 1. Jápáse.   | 1. Jápáme.     |
| 2. Jápádusi.         | 2. Jápásesi. | 2. Jápámesi.   |
| 3. Jápádumi.         | 3. Jápásemi. | 3. Jápámemi.   |

*Preterite.*

| <i>First person.</i> |                                               |                                             |
|----------------------|-----------------------------------------------|---------------------------------------------|
| <i>Singular.</i>     | <i>Dual.</i>                                  | <i>Plural.</i>                              |
| 1. Jápátong.         | 1. { Jápátasa, incl.<br>Jápátasuku, excl.     | 1. { Jápátayo, incl.<br>Jápátako, excl.     |
| 2. Jápátongsi.       | 2. { Jápátasasi, incl.<br>Jápátasukusi, excl. | 2. { Jápátayosi, incl.<br>Jápátakosi, excl. |
| 3. Jápátongmi.       | 3. { Jápátasami, incl.<br>Jápátasukumi, excl. | 3. { Jápátayomi, incl.<br>Jápátakomi, excl. |

| <i>Second person.</i> |                |                |
|-----------------------|----------------|----------------|
| <i>Singular.</i>      | <i>Dual.</i>   | <i>Plural.</i> |
| 1. Jápáteu.           | 1. Jápátasi.   | 1. Jápátani.   |
| 2. Jápátensi.         | 2. Jápátasisi. | 2. Jápátanisi. |
| 3. Jápáteumi.         | 3. Jápátasmi.  | 3. Jápátanimi. |

| <i>Third person.</i> |                |                 |
|----------------------|----------------|-----------------|
| <i>Singular.</i>     | <i>Dual.</i>   | <i>Plural.</i>  |
| 1. Jápáta.           | 1. Jápátase.   | 1. Jápátame.    |
| 2. Jápátasi.         | 2. Jápátasesi. | 2. Jápátamesi.  |
| 3. Jápátami.         | 3. Jápátasemi. | 3. Jápátamemi.* |

\* Observe for a moment the singular neatness, euphony and precision of these forms. The single words Jápátamesi and Jápátamemi must be rendered into English by they all fed them two and they all fed them all; into Newávi, by amisang, aminthuma yata nakala, and amisang amita nakala. And, but for the happy term to feed in English, the distinction would be greater still. In Khas the equivalents are, uni beju le ú uwi lai khuwaiyo and uni heru le ú heru lai khuwaiyo or six words for one!

## INFINITIVE MOOD.

Jápácho, aoristic as usual.

*Participles.*

1st in ba, Jápába, who feeds or will or did feed.

2nd in chome, Jápáchome, feedable, whom or with what any one feeds or will feed.

3rd in na, Jápána, fed, whom or with what any one has fed.

4th in me, Jápádume, &amp;c. 33 forms. Feedable by me; whom or with what I feed or will feed, &amp;c.

5th in me, Jápátongme, &amp;c. 33 forms. The fed of me; whom or with what I fed, &amp;c.

N. B.—1—3 are impersonal, as before: 4—5 are personated.

*Gerunds.*

Impersonated of the present and future. None.

Impersonated of the past, Jápáso, or Jápásomami.

*Personated present.*

1st in na, Jápáduna, &amp;c. 33 forms.

2nd in na, Jápátongna, &amp;c. 33 forms.

*Personated past.*

1st in ko, Jápádúko, &amp;c. 33 forms.

2nd in ko, Jápátongko, &amp;c. 33 forms.

*Specimen of the Kiránti language (Báhing dialect).*

Kwóng múryeu hópo ke di bréthá lálá. Gyékhopáso bréthá dáyána. Wa khyim di kwóng múryeu, rásogno bwaktako, wa ming nung dwángmóse. Gó harem gyánaiyo má tágna, syú, syú. Ike nyau ása jajulso, myem sícho, láma, dáso, binti\* pápta.

Mokoding hópomí harem kwóng rí nyúba gyáwa dyampattame sísi giptako chyanta, yem sísi í ming giptako, syúyo má giwo, dáso, lópáso, gíwo. Hárem múryeumi myem khóguo pápta. Hópomí yo chíwacha dau brétamiko chyantámi. Syuke di ríuyuba gyáwa rínám, myem rácho.

Mékeding ryamnípo béla\* kwósomami ming ke di díta. Myem mingmi wádi rínýuba gyáwa khlyakti giptáko mócho préusta, mára

\* N. B.—Nyan, ása, binti, and béla are Hindi terms having no precise equivalents in the Kiranti tongue; though it would be easy to turn the phrases so as to replace them by pure Kiranti terms I leave them as samples of a process every where going on in the Central Himálaya whose still primitive languages will probably in time become first mixed and then obsolete.

dáyana, wa wancha mi syu (or su) má giwo mótime bwá. Naka ga wa ram khome bwagne, i kamdi mára khéda syu ke kam di ra data (or móta). Mékeding ryamnípo khyim ding glutana chíwachadaúmi á rí tamtameko, myem simtámeke, hópo ke di chótha dintame.

Mékeding hópomi á wancha brétako, móta, yem í ryamnipo, dwákti khedda chyáro, dwaktikhedda plyénti giwo (or plyenotako) dáso dáta.

---

*Translation of the specimen of the Kíránti language (Báhing dialect).*

A certain person went to his prince to complain of a man who was in the habit of coming constantly to his house to make love to his wife, but whom he could never contrive to identify. To his sovereign he said, 'relying on your justice, I appeal to you to have this man arrested.' The Rájah thereon gave the petitioner a phial filled with scented oil and said to him, 'give this phial to your wife and caution her at the same time not to give it to any one.' The man did as he was bade and the Rájah, when he was gone, instructed his spies to look after the matter and to seize and bring to his presence any person they might detect coming from the plaintiff's house, whose clothes had the scent of attar.

By and by, the lover finding an opportunity went, as before, to his mistress who rubbed the attar on his clothes and said to him, 'My husband desired me to give this attar to no one, but you are my life, my soul, how should I refuse it to you? If you like it take it. I can have no other use for it.'

As the lover, thus anointed with attar, thereafter left the house of his mistress the spies of the Rájah who were on the look out for him, seized him and carried him to the Rájah.

The Rájah thereon sent for the woman's husband and said to him, 'this is your wife's lover. If you please, kill him: if you please, let him go.'

B. H. HODGSON.

*October, 1857.*

*On the Váyu tribe of the Central Himálaya.*—By B. H.  
HODGSON, Esq.

The Váyus, vulgarly called Háýus, inhabit the central Himálaya, and the central region of that part of the chain.\* They are subjects of Nepal, tenantry the basin of the river Kósi between the confines of the great valley of Nepal proper and that point where the Kósi turns southwards to issue into the plains. The Váyus belong to that interesting portion of the Himálayan population which, in the essay adverted to, I have denominated the broken tribes—tribes whose status and condition, relatively to those of the unbroken tribes, sufficiently demonstrates that they are of much older standing in Himálaya than the latter. The Váyus are in an exceedingly depressed condition, gradually passing to extinction probably. Their numbers do not now exceed a few thousands, how many, I have no means of ascertaining.

Their high antiquity and the complex character of their language, give them, especially in connexion with other tribes of Himálaya similarly characterised, very great interest as an element of Himálayan population. They consider themselves as a single people distinct from all their neighbours. Their language, which has no marked dialects, and is quite unintelligible to any but themselves, supports this view. So also does their perfect community of habits and customs, though they recognise certain distinctions among themselves, of no practical importance, but marked by specific designations, of which the chief are Yákúm, Dóphóm, Konsino, Bálung, Phoncho, Kámaléchho, &c.

Bálung, I know, means exorcist in the Váyu tongue; and the other terms probably point to some perhaps now forgotten avocations. At all events they cannot explain the force of the terms.

They have a tradition of a very remote time when they were a numerous and powerful people, but never having had the use of writing, their remote past is too vague for ascertainment, no foreign and cultivated people having ever noticed and recorded their exist-

\* See new edition of essay on physical geography of Himálaya now issuing from the press under the auspices of Government.

ence. The religious ideas of the Váyus are extremely vague, nor does their language afford any term for *the* Deity or even for *any* deity though they have, as usual, an exorcist who is their only priest and physician and to whom they look for relief from all those evils which malignant influence, whatever it be, afflicts them with. They are a very inoffensive industrious race employed in the cultivation of the earth. Their use of the plough is noticeable from its rarity in these regions.

As it has been the chief object of this paper to illustrate the highly interesting language\* of the Váyus I shall not at present say more of their status, manners and customs than by a reference to their own account of these conveyed in the statement subjoined to the language as a sample thereof and of which translation was there furnished.

But the physical traits of the Váyu are of an importance second only to that of his language,\* and the following description will help to illustrate them.

Dimensions of a man named Páte, a Váyu of the Yákum caste, aged twenty-eight years, in the service of Captain Gojráj Thápa of Nepál.

|                         |    |    |    |        |
|-------------------------|----|----|----|--------|
| Height,                 | .. | .. | .. | 5. 0.0 |
| Crown of head to hip,   | .. | .. | .. | 1.11.½ |
| Hip to heel, ..         | .. | .. | .. | 3. 0.½ |
| Length of arm and hand, | .. | .. | .. | 2. 2.½ |
| Girth of head,          | .. | .. | .. | 1. 9.0 |
| Girth of arm,           | .. | .. | .. | 0. 9.0 |
| Girth of forearm,       | .. | .. | .. | 0. 9.½ |
| Girth of thigh,         | .. | .. | .. | 1. 6.0 |
| Girth of calf,          | .. | .. | .. | 1. 1.0 |
| Girth of chest,         | .. | .. | .. | 2.11.0 |

Páte is rather below than above the standard height of his fellows, which may be taken at about five feet three inches. His colour is a

\* I meant to have prefaced the details by a few general remarks under the usual heads of article, noun, pronoun, &c. But time runs short and the philological reader will readily apprehend these from the details already given whilst other classes of readers are little likely to pay any attention to the matter.

pure isabelline brown without the least trace of ruddiness in the skin or hair. The eye is dark hazel and the hair long, straight, black, ample on the head, scant every where else.

Vertical view of the head oblate ovoid, rather wider behind than before but not much, and flattish behind.

Bachycephalic. Facial angle very good, the mouth being only moderately salient and the forehead of good height, forwardness and breadth, but the chin defective. Eye-brows even, scantish. No beard or whisker, and a very small moustache. Eyes small, flush with the cheek, oblique, very wide apart, drooping upper lid bent down at the inner angle. Nose rather short, straight, depressed between the eyes, moderately salient elsewhere, broad at end and having large round nostrils. Mouth moderately salient, the peculiar thickening of the upper gum, which chiefly causes the saliency, being not great, and the lips not tumid, only moderately full. Teeth vertically set, strong, white. Chin retiring and small. Zygomæ and cheek bones very salient to the sides and profile flat. Front view of the face squarish, owing to the large angular jaws which are as salient laterally as the zygomæ.

*Remark.*—This young man's physiognomy is distinguished by the full Turanian breadth of head and face. Two others of his race whom I examined—a man of fifty-eight years and another of thirty years—had not the same breadth nor the same perfectly Kalmac eye. These men measured nearly 5.5.0 and were several shades darker in colour than Páte; and upon the whole I incline to regard them as more normal samples of the race than Páte. In a word, I think that I have sufficient grounds for concluding that the Váyus are in general somewhat darker and of a less decidedly Mongolic cast of countenance than the Lepchas (for example), from whose perfectly Turanian type, they lean towards the Turkic and Dravidian subtypes, which again approach the Arian, and are seen in the Kiránti tribe of Himálaya more clearly and more frequently than in the Váyu tribe.

The elder of the two individuals above adverted to, I was enabled to examine rapidly whilst Mr. Scott photographed him. He was 54½ in height, moderately fleshy and dark brown. Vertical view of the head oblate. Wider and flat behind, greatest breadth between

the ears. Rising pyramidally from the zygomæ to the crown of the head. Facial angle not bad, the forehead retiring and narrowing only slightly, the mouth not being porrect, nor the chin retiring but pointed. Eyes remote, not small, but the upper lids flaccid and somewhat down-curved at the inner canthus. Nose pyramidal, not levelled between the eyes nor the extremity much thickened, but the nares large and round. Mouth large but well formed, with neatly shaped lips and vertical fine teeth.

The younger man above alluded to was 5.5.0 and as dark as an ordinary native of the plains whom he further resembled in his unflatted, face though his eye wanted the fullness and shapeliness of that of the lowlanders beside whom I placed him.

When placed beside some Dhángars of the Uráon tribe the impression made upon me by a comparison of the whole was, that the physical type is one and the same in the highlanders and lowlanders; that the type is flexible to a large extent; and that the general effect of the northman's residence for ages in the malarious and jungly swamps of the plains is to cause the Turanian type to incline towards the Negro type but with a wide interval from the latter. The Uráon compared with the Váyú has less breadth of head and face, more protuberance of mouth, and a better shaped, larger eye, not down curved next the nose; and it is thus, I conceive, that the Negro type differs from the Turanian.

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*On the Kiránti tribe of the Central Himálaya.—By B. H.*

HODGSON, *Esq.*

It has been the main purpose of one of the preceding papers to examine the grammatical structure of the Kiránti language as a second sample of that class of Himálayan tongues (the Váyú tongue, already examined, being the first) which I have elsewhere denominated the pronomenalized or complex.\*

The opinion of such scholars as Müller and Caldwell that the Himálayan tongues have nothing Dravidian about them, can thus

\* See essay on physical geography of Himálaya and other papers now issuing from the Calcutta press under the auspices of Government.



be tested, and I think shown to be a mistake; and it will be further demonstrated, I trust, by these and other investigations which I hope soon to complete, that the Himálays are closely connected, as well with the southern as with the northern members of the family of Túr—members by no means so disjointed and dissimilar as it is the fashion to represent them.

As a supplement to the grammatical details, I will now give such a sketch of the Kiránti people, as at present existing in Nepal, as will, I hope, add to the interest and value of the philological portion of my essay.

The Kirántis, on account of their distinctly traceable antiquity as a nation and the peculiar structure of their language, are perhaps the most interesting of all the Himalayan races, not even excepting the Newárs of Nepál proper.

By means of the notices contained in the Classics of the east and west\* we are assured that the Kiránti people was forthcoming in their present abode from 2000 to 2500 years back, and that their power was great and their dominion extensive, reaching possibly at one time to the delta of the Ganges. Moreover, the general tenor of these classical notices is confirmed by the Vansávalis or chronicles of Nepál proper which show a long line of Kiránti sovereigns ruling there from the mythic age of the shepherd kings (Gópál) down to the 14th century of our æra. And lastly, these distinct historical data harmonise with a well-known tradition which assigns a very unusual (in these regions) amount of power and population to the “many-tongued” Kiránti. We know not when the Kirántis were expelled from the plains of India; if indeed they ever held permanent possession there. But it was the Mall dynasty of Nepál proper which about the middle of the 14th century expelled them from the great valley; and the Sás of the eastern or Vijayapur branch of the Makwánis by whom their independance in the mountains, probably about the same period, was greatly trenched on, whilst the Sás of the house of Gorkha, now sovereigns of the modern kingdom of Nepal, completed the subjection of the Kirántis about a century ago.

\* See Müller apud Bunsen and Caldwell and lists of castes taken from Menu and the Puránas apud Calcutta Quarterly.

Adverting to the high recorded antiquity of the terms Kirát or Kiránt and Kiráti or Kiránti (vague nasal) as applied respectively to the country and people, even to this hour, it is remarkable that the Kirántis themselves do not readily admit the genuineness or propriety of those terms, but prefer the names Khwombo vel Khombo and Kiráwa as their general personal designations and seem to have none at all for their country. But the Kirántis, always ignorant of letters, have been now for a long time depressed and subdued; and, huddled as they now are into comparatively narrow limits, they are yet divided among themselves into numerous tribes and septs speaking dialects so diverse as not to be mutually intelligible; and hence they are wont to think only of their sectional names and to forget their general or national one.

It is difficult, owing to the varying limits at diverse aras, to ascertain the precise force of the territorial term Kiránt in the view of the people themselves. But the following statement of boundaries, divisions and included septs may, I believe, be considered sufficiently accurate for all present purposes.

*Kiránt.*

| 1. Wallo Kiránt or<br>Hither Kiránt. | 2. Mánjh Kiránt or<br>Middle Kiránt.<br><i>Respective tribes.</i> | 3. Pallo Kiránt or<br>Further Kuánt.<br>“ |
|--------------------------------------|-------------------------------------------------------------------|-------------------------------------------|
| Yákha.                               | Bontáva.                                                          | Chourasya.                                |
| Límbu.                               | Ródong.                                                           |                                           |
| Lóhorong.                            | Dungmáli.                                                         |                                           |
| Chhingtáng.                          | Kháling.                                                          |                                           |
|                                      | Dúmi.                                                             |                                           |
|                                      | Sángpáng.                                                         |                                           |
|                                      | Báláli.                                                           |                                           |
|                                      | Lambiehkhong.                                                     |                                           |
|                                      | Báhing.                                                           |                                           |
|                                      | Thúlung.                                                          |                                           |
|                                      | Kúlung.                                                           |                                           |
|                                      | Waling.                                                           |                                           |
|                                      | Nachhereng.                                                       |                                           |

This is Kiránt in the larger sense, and including Khwombuán or Kiránt proper, and Limbuán or the country of the Limbus. The

popular inclusion of the latter people is important and I believe well founded, as also that of the Yákhas, though both are often alleged to be not Kirántis. They are at all events closely allied races, having essential community of customs and manners with the Kirántis, and they all intermarry, nor probably do the dialects of the Limbus and Yakhas differ much more from the Khwombu\* tongue, than that tongue now does from itself, as seen in the several dialects of the septs set down above under "Middle Kiránt." The comparative vocabulary already submitted to the Society will go far to decide these questions when taken in connexion with that grammatical analysis of the Limbu tongue which I am now engaged on. The boundaries of Kiránt in its three subdivisions are—

1. Súnkósi to Likhu, } Khwombuan.
2. Likhu to Arun, }
3. Arun to Méchi and } Limbuan.
- Singilela ridge, }

Such are the territorial limits of the extant Kiránti race, in the larger sense. Their numbers probably do not now exceed a quarter of a million; but the tradition which I referred to above, assigns two and a quarter millions as the amount of their population at some remote and not well ascertained period when their country was customarily spoken of as the "no lákh kiránt," and the phrase was interpreted to mean that a house tax at two annas per family yielded nine hundred thousand annas, whence, if we allow five souls to a family, we shall obtain two and a quarter millions of people for the Kirántis inclusive of the Limbus and Yakhas, and possibly the Vayus also. The Kirántis occupy the central or healthful region of the mountains, and never descend, to dwell there, into the lowest and malarious valleys of that region. Consequently they are not reckoned among the Awalias or tribes inured to malaria. Nor can they be placed among the broken tribes, great as is their antiquity and devoid as they long have been of political independence, and moreover, allied as they are by the character of their language to the above two sections of the population of Himálaya or the Awalias and the broken tribes, (see Essay referred to above). The Chiefs or kings of the Kirántis were

\* Potius Khombu. The intercalated "w" is a dialectic peculiarity of Báhing.

called Hang or Hwang. There are of course none such now nor have been for five centuries. Their village headman they still denominate Pasung, equivalent to Rai in the Khas tongue of their present masters the Gorkhalis. The pasung has still under the Gorkhali dynasty, a good deal of authority over his people. He collects their taxes and adjusts their disputes with but rare reference or appeal to the Rajah's Courts.

Unlike most of the subjects of Nepal, the Kirántis retain possession of the freeholds of their ancestors which they call walikha, and the owner, thangpung hangpa. Each holding is extensive, though not generally available, owing to the high slope of the surface, for the superior sort of culture. The boundaries of an estate are defined by the run of the water. The tax paid to the Government by each landholder or thangpung hangpa (literally, lord of the soil) is 5 rupees per annum, 4 being land tax, and 1, in commutation of the corvée.

The general style of cultivation is that appropriate to the uplands, not the more skilful and profitable sort practised in the level tracts, and, though the villages of the Kirántis be fixed, yet their cultivation is not so, each proprietor within his own ample limits, shifting his cultivation perpetually, according as any one spot gets exhausted.

Arva in annos mutant and superest ager. The plough is sometimes used, but very rarely, and the use of it at all is recent and borrowed, nor has the language any term for a plough. The produce is maize, buckwheat, millets, peas, dry rice and cotton. The general, almost exclusive, status of this people is that of agriculturists. They did not till lately take military or menial service.\* They have no craftsmen of their own tribe, but buy iron implements, copper utensils, and ornaments for their women from other tribes, and supply most of their simple wants themselves. The useful arts they practise are all domestic: fine arts they have none, nor ever had: no towns, and only small villages of huts raised obliquely on the outer side on wooden posts some three to six feet, so as to get a level on the slope of the hill: size small because the children separate

\* Jang Bahadur has lately raised some Kiránti regiments. He is wise and has seen in time and provided against the risk of a too homogeneous army. The Kirántis have of late cheerily taken menial service with us in Sikkim.

on marriage; walls of thick reed, plastered, and the pent roof of grass. Each family builds for itself. The women spin and weave the cotton of native growth, which constitutes their sole wear, and the men and women dye the clothes with madder and with other wild plants—whereof one, a climber, yields a fine black colour. They make fermented and distilled liquors for themselves, and use the former in great quantities—the latter moderately.

The Kirántis have not, nor ever had, letters or literature.\* Their religious notions are very vague. They have no name for the God of gods, nor even for any special deity whatever, though the term mang may be construed deity, and that of khyimmo or khyimmang, household deity or penate. Nor is there any hereditary priesthood, or any class set apart and educated for that office. Whom the mang inspires, he is a priest and his duty is to propitiate the Khyim-mang or Penate of each family by an annual worship celebrated after the harvest, and also to perform certain trivial ceremonies at marriages and deaths, but not at births. The priest is named Nakhhong, and he has, moreover, once a year, to make offerings to the manes (sankha) of the ancestors of each householder, or rather, to all the deceased members of each family.

The Kirántis believe heartily in the black art, and call its professor Krakra, Kunyamayawo, &c. The professional antagonist of this formidable person, who undoes the mischief, bodily or mental, which the other had done, who is at once exorcist and physician, is named in the various dialects, Janicha, Mangpa, &c.

There are only two religious festivals per annum, one to the Khyimmo or Penate and the other to the sankha or souls of the deceased.

As already said, birth is not attended by any religious observances.

The Kirántis buy their wives, paying usually 25 to 30 rupees, frequently in the shape of copper household utensils. If they have

\* The Limbus, like the Lepchas, have an alphabet seemingly original but neither people has made much use of it. I submitted these alphabets to the native and English scholars of Madras, Ava and Arrakan and was told they could not be traced to any Indo-chinese or Dravidian source. I had priorly received a like disclaimer from the Lamas of Tibet.

no means, they go and earn their wife by labour in her father's family. They marry usually at maturity—nay, almost universally so. Divorce can always be had at the pleasure of either party; but if the wife seek it, she or her family must give back the price paid for her, and all the children will remain with the husband in every event of divorce. The marriage ceremony is as follows. The priest takes a cock in his left hand and strikes it on the back with the blunt side of a sickle till blood flows from its mouth. According as the blood marks the ground, the priest prophesies that the offspring will be boys or girls; and if no blood flow, that the marriage will be childless. This is the essence of what passes and it seals the contract.

The Kirántis bury their dead on a hill top, making a tomb of stones loosely constructed. The burial takes place on the day of decease. The priest must attend the funeral and as he moves along with the corpse to the grave he from time to time strikes a copper vessel with a stick, and invoking the soul of the deceased, desires it to go in peace and join the souls that went before it. The law of inheritance gives equal shares to all the sons, and nothing to the daughters, unmarried or married. Concubines are unknown. Polygamy is allowed and not uncommon. Polyandry unheard of and abhorred.

Tattooing is unknown. Boring of ears and nose common with the women; rare with the men. The hair is usually worn long and so as to hide the Hindu-like top knot that is however always forthcoming. The general character of the Kirántis is rather bad among the other tribes who consider them to be somewhat fierce and prompt at quarrelling and blows, especially in their cups,—a state very frequent with them. But at Darjiling they have now for 15 years borne an excellent character as servants, being faithful, truthful and orderly, so that their alleged fierceness should, I think, be called manly independence; or be referred to their long past days of political independence and martial habits.

I proceed now to the physical character of the tribe. Premising that I have long been habituated to these physical observations, by no means confined to the hills, I would repeat once\* more that the

\* See Preface to my Essay on Kocch Bodo and Dhimal.

Himalayan type, though upon the whole Mongolian, is not to be judged, (any more than the African one by the negro) by the Kalmak exaggeration of that type; and moreover, that the type exhibits here, as to the north and to the south of us, a large range of variation, indicating, like the lingual type, that the Himalaya has been peopled by successive immigrations of northmen belonging to many, probably to all, of the various subfamilies into which the restless progeny of Túr has been (I think prematurely) divided by European philologists and ethnologists. I think, moreover, that I can discern this sort of accord between the physical and lingual types, to wit, that the tribes with simple languages have more, and the tribes with complex languages have less, of the Mongolian physical attributes, after careful elimination of the presumed effects of mixture of breed (and such facts are always notorious on the spot) where such mixture has taken place. Thus, a Lepcha or Gurung or Magar or Murni to a simple language unites a palpable Mongolian physiognomy and frame, whilst a Kuswar, Dhimali or a Kiránti with a language much allied to the higher Túrkie, Ugrofinnic and Dravidian type\* possesses a face and form tending the same way.

I will now describe my samples, adding, lest I should be supposed to have selected them unfairly, that they are men long in my own service.

Dimensions in English feet and inches.

|                                    | (1) <i>Bontawa</i> |    |               | (2) <i>Bahing</i> |    |               | (3) <i>Thulung</i> |    |               |
|------------------------------------|--------------------|----|---------------|-------------------|----|---------------|--------------------|----|---------------|
| Total height, .....                | 5                  | 4  | 0             | 5                 | 0  | 0             | 5                  | 2  | 0             |
| Crown to hip, .....                | 2                  | 5  | 0             | 2                 | 2  | 0             | 2                  | 3  | 0             |
| Hip to heel, .....                 | 3                  | 2  | 0             | 2                 | 11 | 0             | 3                  | 0  | 0             |
| Fore and aft length of head, ...   | 0                  | 9  | $\frac{1}{8}$ | 0                 | 8  | $\frac{3}{4}$ | 0                  | 8  | $\frac{1}{4}$ |
| Side to side width of Ditto, ..... | 0                  | 6  | 0             | 0                 | 6  | $\frac{1}{4}$ | 0                  | 6  | 0             |
| Girth of Ditto, .....              | 1                  | 9  | $\frac{1}{4}$ | 1                 | 9  | $\frac{1}{2}$ | 1                  | 8  | 0             |
| Breadth of face, .....             | 0                  | 5  | $\frac{1}{8}$ | 0                 | 5  | $\frac{3}{8}$ | 0                  | 5  | $\frac{1}{4}$ |
| Length of arm and hand, .....      | 2                  | 5  | 0             | 2                 | 3  | $\frac{1}{2}$ | 2                  | 4  | 0             |
| Girth of arm, .....                | 0                  | 10 | 0             | 0                 | 9  | $\frac{3}{4}$ | 0                  | 9  | $\frac{1}{4}$ |
| Ditto of fore arm, .....           | 0                  | 9  | $\frac{1}{4}$ | 0                 | 9  | $\frac{3}{4}$ | 0                  | 10 | 0             |

\* The complex pronominalization of the Kuámi verb, points to a special connexion with Muller's Munda subdivision.

|                       |   |   |               |   |    |               |   |    |               |
|-----------------------|---|---|---------------|---|----|---------------|---|----|---------------|
| Girth of thigh, ..... | 1 | 6 | 0             | 1 | 6  | 0             | 1 | 6  | $\frac{1}{2}$ |
| Ditto of calf, .....  | 1 | 0 | $\frac{1}{2}$ | 1 | 0  | $\frac{1}{2}$ | 1 | 0  | $\frac{3}{4}$ |
| Girth of chest, ..... | 2 | 9 | $\frac{1}{2}$ | 2 | 10 | 0             | 2 | 10 | $\frac{1}{2}$ |

No. 1. A Bontawa, age 55. Head, long, narrow, vertical view elliptic, equally wide fore and aft, widest between the ears. Front view of the head and face oval, with the cheek bones little protruded and the forehead not narrowing upwards. Profile or side view good, nearly vertical, the mouth not being at all inclined to prognathism, and the forehead very little retiring, but chin somewhat defective. Forehead of good height and breadth, nearly as wide as the cheek bones. Eyes of good size, remote; upper lid flaccid, but hardly perceptibly bent down next the nose. Nose, long, straight, pyramidal, well elevated though thick and with the nostrils elongated, not round. Mouth well formed, not protuberant, of good size and having shapely lips and vertical teeth not at all exposed, chin not retiring but not advanced and rather defective. Jaws, neither heavy, nor square. Colour, a clear light brown, deeper and less olive than usual. No trace of ruddiness. Hair jet black, ample, straight, glossy, strong but not coarse. Moustache, full and jet black. No whisker. Eye-brows scanty and horizontal. No hair on chest. Figure good but trunk and arms long, and legs short. Very moderate development of bone or muscle for a highlander, and scarcely more than in a plainsman.

2. A Bahing, 30 years old. Head broader and shorter, vertical view oblate ovoid, wider behind than before, but not flattened behind. Front view of the face shows (like the head,) more breadth than in No. 1, and is somewhat square owing to the projection of the cheek bones and of the angles of the jaws. Profile, vertical as in the last, with very little saliency of the mouth, a vertical but somewhat narrow forehead, and a chin flush with the front of the jaw. Forehead less fine than in the last, vertical to the front but somewhat narrow or rather seeming so, owing to the lateral projection of the jaws and cheek bones. Eyes of good size remote, showing faintly but distinctly the usual flaccidity and deflexion towards the nose, of the upper lid. Nose, as in the last, long, straight, pyramidal, broad but not depressed. Nostrils large and round. Mouth of good size and shape, with moderately full lips



of which the upper has a tendency to advance more than the lower, owing to the normal thickening of the gum. Teeth fine and vertical and not at all exposed. Chin devoid of the prominent roundness of the part, flush with the jaw in front. Jaws heavy and angular. Colour as in the last, pale ruddy brown, deeper and less dull than the usual isabelline colour. Hair jet black, straight, strong. No whisker. A scanty moustache. Eye-brows full. Chest hairless. No more development of bone or muscle than in the last, and figure, as before, good but noticeable for length of trunk and arms.

No. 3. A Thulung, 22 years old, has the breadth of head and face of the last, vertical view of the head showing great and remarkably uniform width in proportion to length. Profile line vertical, as before, and all the details of the features wonderfully similar, as in a strong family likeness, and figure also and colour.

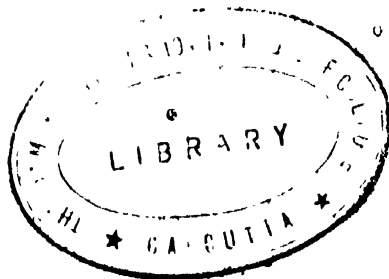
General remark. All these three men have a depth of colour and defect of bone and muscle assimilating them to the lowland Turanians generally and differencing them from the highlanders generally but especially from the Palusen, the Gurung, the Sunwar, the Murmi, the Magar and the Lepcha; and the Bontawa has a head and face carrying on the resemblance with the lowland Turanians and which I believe to be a frequent among the Kirántis as to deserve to be called the rule, not the exception. In conclusion, I may perhaps be permitted to say, as the result of long years of practised observation that the effect, upon the Turanian northmen, of passing from the cold high and dry plateau of "Asie Centrale," down the various steps of the Himalayan ladder into the hot and moist plains of India is to diminish the volume of bony and muscular development, to diminish also the extreme breadth of head and face with the consequent wide separation of all the double organs of sense and to modify the defects of the eye, giving it a freer and straighter aperture and less flaccid upper lid; moreover, that such tribes as, in the throng of successive immigrations, have been broken, barbarized and driven to seek refuge in malarious tracts, seem to manifest a tendency to pass from the low Turanian to the low African or Negro type;\*

\* Narrowness of head and face, and projection of mouth are the great marks of the Negro type. Now I have an Uráon in my service in whom these marks

and lastly that, after these effects have been produced in the course of numberless ages, it must always be unsafe to dogmatise upon physiological or philological grounds only respecting the *special* relations and characteristics of any given tribe without abiding advertence to the general relations and characteristics of such tribe, and to the proof of both that may be had by carefully seeking out and weighing all the available evidence, whether physiological or philological, moral or traditional.

The evidence of any reflux towards the north of the great tide of Turanian population flowing wave after wave over India through the numberless passes of the Himalaya, and also perhaps round the Western and Eastern extremities of the chain, is faint, seeming to be confined to the Newar tribe of Nepal Proper, who have a tradition of their return to Nepal after having reached so far south as Malabar. Nor are there wanting coincidences of arbitrary customs, of the shape and use of agricultural and other implements and of words and grammatical forms to countenance and uphold that tradition, as I have already adverted to in my paper on the Nilgirians.

- \* united to a very dark skin are conspicuous and his lips are very thick and his eye good, and his hair crisply curled, but not at all woolly.



JOURNAL  
OF THE  
ASIATIC SOCIETY OF BENGAL,

EDITED BY  
THE SECRETARIES.

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VOL. XXVII.

Nos. I. to V.—1858.

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"It will flourish, if naturalists, chemists, antiquaries, philologists, and men of science in different parts of *Asia*, will commit their observations to writing, and send them to the Asiatic Society at Calcutta. It will languish if such communications shall be long intermitted; and it will die away, if they shall entirely cease."

SIR WM. JONES.

CALCUTTA:

PRINTED BY C. B. LEWIS, BAPTIST MISSION PRESS.

1859.



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## ERRATA IN THE JOURNAL FOR 1858.

VOL. XXVII.

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Page 230, notes, last line *for* adjective *read* adjection.

„ 235, notes l. 3 *ab infra* *read* सर्वान्.

„ 240, notes, l. 15 *for* and *read* are.

„ 248, notes, l. 6 *for* चार *read* चोर.

„ 249, notes, l. 2 *for* Gautama *read* Gotama.

„ „ notes, l. 4 *for* Ras *read* Rao.

„ 302, l. 14 *for* occidental *read* accidental.

„ 303, l. 23 *read* अक्षणिन् and अंशुजाल.

„ 305, l. 20 *for* which *read* while.

„ 313, l. 1 *for* اتمام يافت ياني *read* اتمام يافت باني

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The conclusion of Mr. Hodgson's paper, given in this Vol. having been sent to England for his revision, we are enabled to publish his corrections.

The Editors are glad to find that in this part (the MS. having been legible throughout) there are hardly any errors of importance.

We give the following extract from Mr. Hodgson's letter.

“The errata amount to little more than a perseverance in that titular misnomer whereby comparative vocabularies of the empirical kind were confounded with grammatical treatises. Papers one and two, on the languages of the broken tribes and on the dialectic differences of the language of the Kiranti tribe, were of the former sort. Papers three and four on the Vayu and Bahing, were of the latter sort, and should therefore have been kept apart, as well from each other as from the preceding papers, even though you had determined to throw the descriptive part of Vayu and Bahing to the end of the papers on them. Whereas you have run the whole of the four papers into one, under the style and title of “Comparative Vocabulary of the languages of the broken tribes of Nepal,” a designation which is true only in regard to the first of these four papers; for the Kirantis are not one of the broken tribes; nor is there the least affinity between the empirical treatment of the vocabularies of both one and the other and the grammatical analyses which follow, though of the samples of language chosen for this analysis, one belonged to a tribe classed with the broken, and the other to a tribe classed among the septa or clans of the Kirantis.

Therefore I have erased the heading of the part now returned to you (Comparative Vocabulary, &c.) and substituted “grammatical analysis of the Bahing

dialect of the Kiranti language ;" and, for the top of each successive page, "Bahing grammar" in lieu of Bahing Vocabulary."

Page 393, Declension, case 7, dele All.

„ 396, dele comma between that and which, voce Relative of all genders; and in the note *for* it *read* The relative.

Page 399, *for* kwag-namme *read* kwagnamme.

„ 409 *for* Transitives in *to* *read* Transitives in *do*.

„ 421, *to* the note *add* For a paradigm of transitives in "to" which change the t into d, see on to pages 439-441.

Page 438 *for* Jito be *born* *read* Jito be *torn*.

Bottom of same page in note *for* Dravidianum *read* Dravidianism.

To note at page 443 *add* It is published as No. XXVII. of Extracts from the Records of the Government of Bengal.

Page 446, l. 7 *for* fermed *read* formed.

„ 450, l. 4 *for* pasung *read* Pasung.

„ „ l. 22 *for* and superest ager, *read* *et* superest ager.

„ 454, 5 lines from bottom *after* of good size *add* a comma.

## CORRIGENDA AND ADDENDA

*To the papers on the languages of the broken tribes of Nepal, &c.*

—By B. H. HODGSON, Esq. B. C. S.

[See *Journal*, Nos. V. and VI. for 1857.]

[We have received from Mr. Hodgson the following list of the corrections and additions which he has found it necessary to make in his papers published in Vol. XXVI. We have already stated in a former number that much of the MS. was left with us in a very rough and illegible state, and in spite of every care, many errors could not but creep in. In fact it was only at Mr. Hodgson's own earnest wish, that we consented to have it printed at all, as we did not consider the MS. in a fit state for publication. We therefore gladly publish the list in full, by way of an appendix to the whole series of communications; for the *additions*, of course, we are not responsible, as they were not in the original MS.]

We may also add that the latter half of the series of papers was fairly legible; and we are gratified to notice that throughout that portion the errors are very trifling. Had all the MS. been in the same condition, we could, with infinitely less trouble to ourselves, have given *the whole* with equal correctness.—Eps.]

Page 318, line 2 from bottom for 5-5 read 5-12.

" 319, " 6 from top for Baking read Bahing.

" 322, col. Hayu line 13 add note, Ang, Ung, A = my, thy, his, &c. Ang-mu, Ungmu, Amu = mine, thine, &c. and so in plural. See on to complete view of this tongue in sequel.

Page, 322 col. Hayu between lines 13 and 14 add A or Amu.

" " " " line 15 delo A-mu.

" " " " " 16 for Ang-ku read Ang-ki.

" " " " " 18 for Un-ni-ma read Un-ni-mu.

" 323 " Pahri " 4 add note, Gu is the minor sign; hma, the major. They are affixed to all qualitatives, numeral, pronominal and other: see on.

Page 324 col. Pahri line 16 read Gulhna and add note. See note at the word ten.

" 325 " " " 13 add note, Dha is sometimes substituted for, and sometimes superadded to, the major sign or hma, as in Newari, to which tongue the Pahri bears a close resemblance.

Page 333 and onwards, as the heading of the pages for "*languages of the broken tribes of Nepal*" read "*dialects of the Kirānti language*."

Page 333 col. Rodung line 18 add note. In this and the following columns *sá* prefixed means flesh. It is the segregative and is dropt as usual in composition, thus in column two, *pí* being cow, *pí yúba* or *pí yúva* is cow's horn and not *pí sayuba*, see on to the word skin.

Page 334 col. Rodung line 6 add note. Literally cow its male its calf. This is the general way of expressing a possessive or genitive: See father and mother and the 3rd possessive pronoun. It will be seen that the latter in its conjunct form is a general prefix to the radical word wherever relationship can be predicated even when a noun stands alone, thus, *unpa* = father, literally his father, *pater illius vel istius*. But the prefix is often used when no relationship exists or can be imagined, thus, *ú khoen* = day in column 2nd. In fact it is nearly an inseparable particle.

Page 334 col. Rúngchhénbúng, line 32 dele *Pá*.

" 335 " Chowrasya, line 30 add as note on *ápó*.—For change in the root, *pá* to *pó* see Bálung in sequel, and observe, the root can *never* be used *alone*.

Page 335, col. Kúlung'ya, line 33 dele *pá*.

" 336 " Rodung " 9 for Chhong gara read Chhonggarachha.

" " " " 32 dele *ma*.

" " " " Rúngchhénbúng between lines 23 and 24 for *womau* read woman.

" " " " 32 for *má* read *euma*.

" " " Chhintángya l. 20 for *Pá* read *Upá*.

" " " " 27 dele *ma*.

" " " Náchheréng " 30 dele *ma*.

" " " end of the note for *Thul* read *Thulung*.

" 337 col. Yákha line 32 dele *ma*.

" " " Kulúng'ya l. 31 dele *ma*.

" " " Thulung'ya l. 38 add note, *gna-u* = *gna-wa*, and *gnawa*, *gnami* like *tawa tami*, boy and girl, in *Vayu*.

Page 337 col. Thulung'ya l. 4 from bottom for *Résépmá* gram read *Résépmá Má* is grain.

Page 337 col. Thulung'ya l. 2 from bottom for *Upáp Bheda* read *Upáp-bheda*.

Page 338 col. English l. 30 add note, Dual omitted accidentally. It exists generally. The note below gives it for Rúngchhén.

Page 338 dele note\* and read as follows.—See note at bone and at calf. *U'-hok wa* = its cover: *Sahokwa* flesh cover. So *Singhokwa* is tree cover or bark.

Page 338 col. Náchheréng l. 22 dele note†.

" " " Rúngchhénbúng l. 32 add § at the word Ungkang.

" " " " l. 36 read *O Ko* &c. as in singular.

" " " " l. 39 dele § at the word Ungkang.

" " " l. 2 from bottom read sign of number.

" " " l. 1 " read *vel Oko-chi*, *vel Euyakochi*.

" 339 col. Thulung'ya l. 16 read *Nepsung*, sunshine. *Nem sun*.

" 340 " English l. 5 add note. The two forms of these possessives were not obtained in the plural. Perhaps from insufficient questioning whereby the dual was missed.

Page 340 col. English l. 7 dele \* and also the note.

" " " " l. 23 for Conj. read Acc. and dele § and also the note.

" " " " for notes † and ‡ read *Eukta* is the separate form; and so *ai-o heusa sumya*, &c. *chha* is for beings, and *pop* for things, thus *eukcha mana* is one of human kind, *eukchha duwachha* one man, *eukchha menenchachiha*, one woman; *euk pop topti*, one hat. *Bangpang* for the major and *pop* for the minor is *Mikr*. Other segregatives were named to me but confusedly, and if they be proper to *Kiranti* they are fast becoming obsolete.

Page 340 col. Rodung dele *Chi*, *D. Am*, &c.

" " " Rúngchhénbúng l. 4 for *Eukhha* read *Eukchha*.

" " " " l. 6 dele unchanged.

" 341 col. Thulung'ya l. 7 for *Ni* read *humans*.

- " " " " l. 8 *read* animals and things. *Ni*, root.  
 " " " " l. 10 add and things.  
 " " " " l. 12 *for* Gnolo *read* Gnole.  
 " " " " l. 23 *for* Kwongus-ang Ko-dyum" *read* Kwongu-sangkodyum.  
 " 342 col. English dele No genders D. and Pr. &c.  
 " " " " l. 13 dele note \*.  
 " " " " l. 16 add note. There is no relative when, and then is not properly a correlative. The native equivalents ab, jub, &c. and cho, yu, khu, infra, are from Urdu and Newari and were used only to prevent misapprehension when questioning.  
 Page 342 col. English l. 26 *for* (chó) *read* above.  
 " " " " l. 27 dele above.  
 " " " " l. 28 dele Below (yn).  
 " " " " l. 29 *for* (Khu) *read* Below.  
 " " " Rodung l. 5 dele Hie huc hoc, &c.  
 " " " " l. 7 *for* ditto *read* Hya ko.  
 " " " " l. 8. *for* Dósó *read* Tyako, *for* Tyaho *read* Tya and add note, Hya and Tya, are of all genders. Their dual and plural are formed as in the next dialect.  
 Page 342 col. Rúngchhénbung l. 8 dele Oko\*  
 " " " " l. 9 dele Okochi &c.  
 " " " " l. 10 dele Sm. Pl.  
 " " " " l. 11 *for* Hynoko &c. *read* Mo.  
 " " dele note\*.  
 " " dele note†.  
 " " add in the 2nd line in the bottom Chi is the dual and nin the plural sign for all.  
 " " last line at bottom dele subs.  
 Page 344 col. English l. 2 dele Up &c.  
 " " " " l. 27 dele Dual, Plural.  
 " " " Rúngchhénbung l. 2 dele Dhutnang &c.  
 " " " " l. 29 *read* Im'sa, Singular.  
 " " " " l. 34 *for* (so shitése, *read* (so shít = esei—and *for* Piss chesa *read* Piss = chesa).  
 Page 344 add at bottom as note, Chi and nin, passim, are the dual and plural signs.  
 Page 346 col. English l. 5 dele sign \* and note.  
 " " " " l. 6 dele sign \* and note.  
 " " " " l. 16 dele sign † and note.  
 " " " Rodung l. 17 dele note.‡  
 " " " Rúngchhénbung l. 10 add note That is, puang, give to me, makes puang chang in dual and puang nang in plural; but pí, give to any, makes pu-chi dual and pu-nm, plural. So Né — take from me has chi and nm for dual and plural: but battu = take generally las chu for dual and nm for plural.  
 Page 346 col. Rúngchhénbung l. 27 *for* yen mettu *read* yeng mettu and dele khangmúsá?  
 Page 346 col. Rúngchhénbung l. 29 add as a note,—Mettu is causal and yeng mettu is cause to see, khang mettu, cause to hear, both used for tell.  
 " " " " l. 3 from bottom *for* Khan *read* Khang.  
 Page 346 at the end *for* note note § *read*—Generic signs stick to numerals but can't attach to the adjective, e. g. nuwa mana, enk chha nuwa mana chúpi, euk pop nuwa chúpi. In Newari these segregatives attach to both numeral and adjective, thus chhaluna bhinghuma mana = eukchha nuwa mana and chhagu bhing-gu chupi = eukpop nuwa chúpi.  
 Page 348 col. English l. 1 dele sign \* and note.  
 " " " " l. 14 dele Circular.  
 " " " " l. 18 dele Unlevel, uneven.†  
 " " " Rúngchhénbung l. 1 and 2, dele notes.‡

- „ „ at the end *for* former *read* = great. Pang vel bang vel wang is the same as the numeral suffix.
- „ 350 col. Bálálí l. 14 add ‡.
- „ 350 „ Lóhóróng l. 23 dele fresh, and add §.
- Page 351 col. English l. 11 dele||.
- „ „ Báhing, l. 20 add||.
- „ „ Lóhóróng l. 8 *for* Pepasá *read* Pipasá.
- „ „ l. 5 from the bottom *for* Dangmaling *read* Dúngmali, ng.
- „ „ l. 3 from bottom *for* Búcha Lámi *read* Búcha and Lámi.
- „ „ l. 2 from bottom *for* Séthe *read* Sé.
- „ „ at the end *for* any one's filius istius. *read* any one's child, filius istius or illius.
- „ 352 col. English l. 3 dele Wa tami my girl.
- „ „ Lóhóróng l. 5 add sign || and note “There is no proper name for son and daughter, the words are the same as those for boy and girl, nor to these can the 1st or 2nd pronoun prefix be added, as the 3rd is, nor would that serve the turn, umpása being filius cujusvis and hence um being the almost inseparable adjunct of nouns. See the words father and mother and the pronouns possessive. In Báhing there is an anomalous change of the radical word however which must be remembered.”
- Page 352 col. Báhingyá l. 19 dele Mo po dad and Mam po.
- „ „ „ l. 22 dele ipo thy, apo his.
- „ „ „ Lóhóróng l. 2 add = my.
- „ „ „ „ l. 24 dele Pá. Ung pa, &c.
- „ „ „ Lambichhong l. 17 dele Pa
- „ „ „ Sàngpáng l. 1 *for* Ar' *read* Aa.
- „ „ „ Dúngmali l. 19 dele Pa, and add note “Throughout this column the prefixing of the possessive pronoun sign is indispensable. The root pá cannot be used alone. The further change of pá into pó is peculiar to Báhing.”
- Page 353 col. Lóhóróng l. 2 dele gen. sign.
- „ „ „ l. 5 dele Lang leg.
- „ „ „ „ l. 6 add note Throughout this column kholi and lan, lung, lak are = leg; and blem tem, phiek phiak are segregatives or rather one segregative used for flat things. See arm and leg and compare hand and foot.
- Page 353 col. Lóhóróng l. 9 add note Sing = tree in this and next column is segregative. Sing i-sa is literally tree its fruit.
- Page 353 col. Lambichhong l. 9 dele (ma fem, passim.)
- „ „ „ l. 10 *read* mendima.
- „ „ „ Báláli l. 11 *for* Muthu *read* Mithi.
- „ 354 „ Báhing. l. 6 *for* arms *read* arm.
- „ „ „ Lóhóróng l. 6 add all and only.
- „ „ „ „ l. 8 *for* arms *read* arm.
- „ „ „ „ l. 7 add flat arm.
- „ „ „ „ l. 12 dele “sá gen. sign.
- „ „ „ Báláli l. 8 add sign \* and arm flat.
- „ „ „ Sàngpúng l. 8 add arm flat.
- „ „ „ Dúmi l. 6 *for* head *read* Do = head.
- „ „ „ Khaling l. 6 add flat arm.
- „ 355 „ Báhing l. 18 dele Mo.\*
- „ „ „ Lóhóróng l. 23 dele Ma. Ma.
- „ „ „ Lambichhong l. 16 dele Ma.
- „ „ „ Báláli l. 19 dele Má.
- „ „ „ Sàngpúng l. 17 dele Má.
- „ „ „ Dúngmali l. 16 dele Má.
- „ 355 l. 11 from bottom *for* as ad doubled and *read* always added but,—and add See arm and hand, leg and foot.
- Page 356 col. Báhing, l. 7 dele from so to signs and add note—Gna-wa gna-mi agree with ta-wa, ta-mi, &c. but pa-sang ma-sang of column 6th makes the sex signs prefixual. Dúmi and Khaling, W. compare Dihong of Assam.



- Page 356 col. Báhing. l. 20 dele = Kho-la Dihong of Asam.  
 " " " Lóhóróng l. 11 for no read not and add sign\*.  
 " " " " l. 20 dele Sing hok' tree skin = bark.  
 " " " " l. 22 dele flesh cover.  
 " " " Lámichhóng l. 6 for root sex repeated read root : sex sign repeated.  
 " " " " l. 8 add ditto.  
 " " " " l. 19 add cover.  
 " 357 " Sàngpáng l. 22 add U-yu.  
 " " " Dúngmáli l. 10 dele sky bird and sign\*.  
 " " " l. 1 notes, dele from see flesh to ea and for see other paper read  
 So also sing in sing hok = tree cover or bark. Hok or hokwa if alone takes the  
 inseparable pronoun prefix, hence umhowka = its cover, but if sa be used the  
 compound sahokwá needs no such pronoun adjunct.  
 Page 357 at bottom add See on to note at His, Her's Its.  
 " 358 col. English l. 9 dele Thee.  
 " " " l. 11 dele Himself.  
 " " " Báhing. l. 5 for Sevalachá read Swalachá, and add note Swala-  
 cha, m. Swalami, f. Here the suffix chá takes the place of wá in gna wa  
 gna mi, &c. aforegone.  
 Page 358 col. Báhing. l. 9 dele Na.  
 " " " l. 12 dele O-ú.  
 " " " Lóhóróng l. 9 dele Hana.  
 " " " " l. 11 dele Mo. Mose.  
 " " " Lámichhóng dele l. 8 and 9.  
 " " " " l. 11 for Toma read Tona.  
 " " " " dele l. 12 and add note,—The 3rd pronoun is always  
 minutely specific, not merely as the person referred to is near or far off the  
 speaker but as he is on a level, or above or below him. Yona Mona Tona  
 mark these latter distinctions.  
 Page 358 col. Bálali l. 10 dele Mo ó.  
 " 359 " Báhing. dele l. 3.  
 " " l. 2 from bottom add See p. 171.  
 " " last line for Akoi sing read Akoinn sing,—and add—See back to note at  
 Plant.  
 Page 360 col. English dele l. 3, 4, 5, 6.  
 " " " l. 9 dele generic signs S. D. P.  
 " " " Báhing. dele l. 6, 7, 8, 9.  
 " " " Lámichhóng l. 4 add note—In Lambichhong Balali, &c. the dual  
 and plural are not throughout discernible.  
 Page 360 col. Lámichhóng dele ls. 11, 12, 13, 14, 15, 16, 17, 18, 19 and 20,—  
 these being merely author's notes of comparison with the Dravida tongues.  
 Page 360 col. Bálali l. 9 add Hippang.  
 " " " " l. 10 add Sumbung.  
 " " " " l. 11 add Libang.  
 " " " Sàng-páng l. 5 add Euli.  
 " " " " l. 6 add Hissali.  
 " " " " l. 8 add Sumkali.  
 " " " " l. 10 add Lakkali.  
 " " " Dúngmáli l. 7 for m. po read m : Po.  
 " 361 col. English dele ls. 8, 9, 10.  
 " " " Báhing. l. 14 add note,—Genitive sign rarely used, never when  
 two words united as horse's foot, silver jug, &c. 1st of two nouns by position  
 alone is genitive.  
 " " " Lám. dele ls. 1—5. •  
 " " " last line dele 1 cow, 2 cows and for &c. read two men &c. The separate  
 form is Itta = Ikku of Balali.  
 e 362 col. English and Báhing. lines 14—17, read thus :  
 above, on top. { A juju di (its head in).  
 { Hátýu. Apiyo di.

- Below, on bottom. { Háyu. Apum di.  
(its bottom or base in).  
" " " " l. 18 dele on middle.  
" 363 col. English l. 19 *for* primitive *read* primitive.  
" " 1st line from bottom *for* Hona *read* Khona.  
" " 2nd line from bottom *for* wa *read* wo—in the same line *for* wa *read* wo.  
" " 5th line from bottom *read* up, &c. Kugna *for* up, Kugna.  
" " 6th line from bottom add 1 before Pi-gna—add 3 before Pi-Rá add 1 before Pi-te.  
Page 363 add in the bottom,—See prepositions, adverbs and verbs in sequel.  
The expression of position is thrown as much as possible on the verbs, there being very few proper adverbs, thus go up is either ascend, or, its top to go.  
Page 364 col. English l. 2 dele Dual Pl.  
" " " Báling. l. 5 *for* Syu, seu, &c. *read* Caret.  
" " " " l. 15 dele tung-o.  
" " " " l. 23 dele syo.  
" " col. Lohorong l. 9 dele causal mette.  
" " " " l. 12 and 17 add D.  
" " " " l. 13 add Pl. chai mette and add note,—Mette is every where the causal, thus chayo makes chayomette and Dunge Dungmette, Iue Imette and Poge Pogmette.  
Page 364 col. Lohorong l. 14 dele Dung mette Cha cho mette.  
" " " " l. 18 add Pl.  
" " " " l. 19 dele Imette.  
" " " " l. 20 *for* Ipeche *read* Imache.  
" " " " l. 24 add C.  
" " " " l. 27 *read* Icheche, D. Ichane, Pl.  
Page 365 col. Lohorong l. 2, 16, 19, 22, 25, 28, 31 add D.  
" " " " l. 3, 8, 11, 14, 17, 20, 23, 26, 29, 32 add Pl.  
" " " " l. 5 add or and dele mete.  
" " " " l. 6 add or.  
" " " " l. 7 *for* —che *read* —gache and add D.  
" " " " l. 10 *for* —che *read* —ache and add D.  
" " " " l. 13 *for* —che *read* —ache and add D.  
" " " Lámbichhong l. 27 dele Pita.  
" " " " l. 28 *for* chu *read* Piruchu and after P add note—Pirang give to me makes dual in ching and plural in ning: but pira give to any, has chu and nu respectively.  
Page 365 col. Khaling after l. 10 add Biye.  
" 366 col. Báling. l. 5 *for* Tyú-po *read* Lommette causal.  
" " col. Lohorong l. 2 dele Lom-mette.  
" " " " l. 5, 10, 22 add D.  
" " " " l. 6, 23, 28 add P.  
" " " " l. 8 dele Its causal Sed mette.  
" " " " l. 11 add P. causal Sed mette. Sed motta che D. Sed mettane, Pl.  
" " " " l. 16 *for* —che *read* Ladappache D.  
" " " " l. 17 *for* Ladapam *read* Ladapamne P.  
" " " " l. 18 dele —ne.  
" " " " l. 20, 25 add vel.  
" " " " after l. 24 add Yuksache D. Yuksanne P.  
" " " " l. 27 *for* —che *read* Thepogache D.  
" " " Dúngmáli l. 13 *for* Kha-ye *read* Kha-de.  
Page 367 col. Lohorong l. 15 *for* —che *read* Isache.  
" " " " l. 18 add D.  
" " " " l. 19 dele not good.  
" " " " l. 20 *for* meha *read* miha P.  
" " " " l. 21 add chia-miha.

- Page 367 col. Lóhóróng l. 23 *for* ne-ma *read* ne-ohia-mia.  
 " " " " after l. 26 add —mia.  
 " " " Lámichhóng l. 1 to 4 dele Numda, &c. down to suffix.  
 " " " " l. 12 dele yuk = yuk.  
 " 368 col. Lóhóróng l. 2 & 8 add D.  
 " " " " l. 3 & 9 add P.  
 " " " " from lines 12 to 15 dele Tum te &c. and add The verbal  
 forms are Tumte, imperative. 1. Tumtigna. 2. Tuntane. 3. Tumta, indicative.  
 Page 368 " " l. 17 dele limte.  
 " " " " l. 19 to 21 dele Lim ku gna, &c. and add so also Limte.  
 Be sweet whence Indicative Lintigna vel Limukgna, I am sweet, &c. And  
 Khiktigna vel Khikgna. I am bitter, &c.  
 Page 368 " " l. 23 *for* not *read* sweet not.  
 " " " " dele lines 26 to 29.  
 " " " " l. 30 & 34 add D.  
 " " " " l. 31 & 35 add P.  
 " " " Lambi. l. 1 dele Bon est.  
 Page 369 col. Lóhóróng l. 3 add --chia D.—mia P.  
 " " " " l. 5 add mia.  
 " " " " l. 7 add—chia-mia.  
 " " " " l. 11 *for* Bí ha *read* vel.  
 " " " " l. 12 add to Biye—chia—mia.  
 " " " " l. 15 add to Phíye—chia-mia.  
 " " " " l. 16 add chia-mia.  
 " " " " dele foot note.  
 " 370 col. Báhingyá l. 2, 3, 5, 7, 11, 12, & 13 add—daasi and—daa.  
 Page 371 col. English l. 2 *for* of *read* or.  
 " " transfer lines 9 and 10 above lines 6 to 8.  
 Page 371 col. Báhingyá l. 2 & 4 add daasi daa.  
 " " " l. 9 add foot note Sé = flesh : neuba = good : guolo =  
 great.  
 " 373 col. English after line 34 add Evening Nomothipsing.  
 " " " Váyu l. 38 *for* swam *read* swom.  
 " " " l. 3 *for* got *read* Got and add note to line 6 Wo for the  
 males, mi for the females. Angki namsang = our own smell, Gyeti namsang  
 = other smell. Therefore the suffixes wo and mi here form derivative substan-  
 tives. In Ta-wo, Ta-mi they are merely sex signs. See on to adjectives for  
 other uses.  
 " " " " l. 1 to 3 from bottom add note Chhyang is the instrumental  
 and vi the agentive suffix. The verb is to p' to strike.  
 Page 374 col. Váyu l. 8 *for* Mechho-túnvi *read* mechho-túnvi.  
 " " " " l. 14 *for* khochi *read* khocho.  
 " " " " l. 18 add to Pok (abrupt accent).  
 " " col. English last line add Morning, Nomoloksing.  
 " " " Váyu l. 9 from bottom *for* Mynung *read* Minung.  
 " " " " l. 6 " " *for* Cháju *read* Chháju.  
 " 375 col. English l. 12 *for* Oor *read* Oar.  
 " " " Váyu 2nd col. l. 17 add to Puchhí rú = head bone.  
 " 376 col. " l. 1 *for* Choli *read* Choti.  
 " " " " l. 7 *for* pronoun conveys *read* pronoun or verb conveys.  
 " 377 l. 3 of foot note *for* gothpto' *read* gothato.  
 " 379 1st col. Crude l. 44 to Lupta add (Lusta).  
 " " col. Affixes l. 8 *for* Participul *read* Participial.  
 Page 379 col. Affixes l. 10, add to follow. †Observe that all the numerous  
 adjectives ending in vi, ta, or tang, are really participles, and also that none  
 of them take a formative suffix such as belongs to the adjectives proper, as  
 noh'ka, good. But in truth such adjectives almost never affix these signs,  
 thus nohka tawo is a good boy and nohka tamii is a good girl, and nohka sing-  
 phun is a good tree. If you add the sign to a proper adjective, you make it

substantival, as *nohka wo* the good one (male). Adjectives derived from substantives (abstracts) indispensably require the suffixes, e. g. *choti* strength, *chotiwo*, strong, and also the strong one. See further remarks under the head of substantives.

„ 380 l. 13 *for* Healthful *read* Asleep.

„ 3 from bottom of note add and *tuntang*, what fit to be drunk.

„ 381 1st col. l. 23 *for* assert *read* apert.

„ „ 3rd „ l. 4 *for* partie *read* participial.

„ „ l. 16 *for* Participial *read* Participial.

„ „ l. 23 add Participles.

Page 383 2nd col. l. 15 *dele* má.

„ 384 1st „ l. 8 add or.

„ „ 2nd „ l. 24 *for* Pinkumu *read* Penkumu.

„ „ „ l. 33 add Genitival. But the *mu* neuter sign not required with

*nohka*. With *jingsa* and with *jekhom* it is for they are substantives. See p. 379.

Page 385 2nd col. l. 13 *for* Chhingjimu *read* Chhingji.

„ „ „ l. 16 *for* Jishta *read* Jista.

„ „ „ l. 30 *for* Kwonghiet *read* Kwongkhet.

„ „ 3rd „ l. 1 *for* Participial *read* Participial.

„ „ „ l. 7 add — *mu*.

Page 386 1st col. l. 22 *read* fixed, firm or unshakeable.

„ „ 2nd „ l. 24 *for* Mólees *read* Mólbe and add as note, *Mé* = fire: *Mébé* *khosta* dressed in fire or with fire. *Tí* = water: *Tibe khosta* dressed in or with water.

Page 387 add at bottom. N. B.—In reference to the suffixes, *wo*, *mi*, *mu*, See notes at p. 57 and 59 and 63. One of the equivalents for *wo* is *cho*, and *pú* is another. But the latter is rarely used and the former can be used with the ordinary signs of sex superadded as *bing-cho* = handsome and *bang-cho* = adult, whence *bing-cho-wo* formosus, *bing-cho-mi* formosa.

Insert the Numeral Collectives at p. 393 *after* the *Vayu* Numerals in p. 388.

Page 389 at l. 19, 27 & 44 add foot note. All these forms in *hé*, and (with the root doubled) in *há* are gerundial; see on to p. 436 &c. As the Adjectives are so often participles, so are the adverbs (and prepositions too, in less degree) gerundial.

Page 390 2nd col. l. 19 *for* *Mi* &c. *read* *Mi*, or *Wáthi*, *lom khén*.

„ 391 „ „ l. 2 *for* *Kha khakha* *read* *khakkhakha*.

„ „ „ l. 27 add *after* *Vinvinha*, (rounding, or rather, having rounded).

„ „ „ l. 51 *for* *Cho'mi ithijla*, *read* *Chomi*. *Hatha ithijla*.

„ 392 1st col. l. 36 *for* Modesty *read* Modestly.

Page 393 2nd line from bottom add foot note. Literally, in the top and in the bottom for upon and under, super et infra. This form of prepositions, i. e. locative of the noun, is common owing to rarity of prepositions proper or case signs.

Page 394 2nd col. l. 5 & 6 *for* *he* *read* *é*.

„ „ „ l. 19 add foot note. †Observe that *bek* is *come in*, and *bellá* *go in*. So *lok* is *come out* and *lokla* is *go out*. The root *lí*, to go, is thus added to many verbs.

Page 395 „ „ l. 3 & 4 put \*

„ „ „ l. 5 *for* *lutimrekrá* *read* *lutimrekkúmeling*.

„ „ „ l. 21 *for* *wanhé* *read* or *Cháju wanhé*.

„ „ „ l. 23 *for* *huthé* *read* or *Cháju luthé*.

„ „ „ l. 28 *for* *yongha* *read* *yonkha*.

Page 396 „ „ l. 7 *dele* *nungna* and add *Kamung nungna*.

„ „ „ l. 32 add foot note. † Better *Achho chep'chephá sasun* Literally, his body having perforated he pierced.

Page 397 „ „ l. 21 *for* *mú* *read* *mii*.

„ 398 „ „ l. 12, 34 and 43 add foot note. The *s* is essential, *pha'st* as proved by the conjugation which see. But in the imperative it is as *spoke* replaced by an abrupt accent, *pha'to*. In general, such an abrupt accen

before the sign in verbs transitive indicates a euphonically dropt consonant identical with that of the sign, so that the doubling of the sign of transitive verbs may be looked upon as the normal form, as proved by the conjugations, thus *pho'ko* = beget is *phokko* a derivative of *bok'* = be born, and *pu'ko* = awaken is *pukko* a derivative of the neuter *buk'*. Here are neuters made transitive by redoubled sign, added to a hardening of the initial consonant which is seen also in *dum* = become. Whence *thum* = cause to become. But besides this, the abrupt tone in transitives denotes a radical consonant similar to that of the sign and necessarily to be restored, thus *to'po* = strike must be *toppo* and *chi'ko* = break, *chukko*, &c.

- Page 401 1st col. l. 27 add *Ride*.  
 " " " " l. 29 for *Iride* read *Iride*.  
 " 402 2nd " l. 14 for *phá'to* read *phá'sto*.  
 " " " l. 17 for *pinu* read *ping*.  
 " 404 " " l. 27 for *thá* read *that'*.  
 " 405 " " l. 49 for *Po'ko* or *Pu'ko* read *Pu'ko pukko'*.  
 " " " dele last foot note.  
 " 406 " " l. 2 from bottom add (*Tokko*).  
 " 407 " " l. 27 add (*Poppo*).  
 " 408 2nd col. l. 36 add (after *Theko*)—*Thésung*, *Thesche*. *Theto*.  
 " " " l. 48 add, \* *Lún* expresses run this way, *Lún lá* run that way, i. e. to and from the speaker. So also *Rú* and *Rú lá* just ahead and all other neuters to which *lá* is added.  
 " " " l. 49 dele \* and foot note.  
 " " " l. 50 add (*phasto*). *Lun'gpingko*.  
 Page 409 1st col. l. 23 dele or.  
 " " " l. 45 and 48 add or him.  
 " " 2nd " l. 4 add note \* *Rú* expresses flee, or flee here. *Rúla*, flee away, free from.  
 " " " l. 16 add note † *IIanto* is causal as well as the next and normally causal form. *IIanto* is one of the numerous class of verbs which are at once transitive and causal in which the distinction of the two sorts of verbs is lost.  
 " " " last line for *Suksa met'pingko not'pingko* read *Suksa met'pingko* or *Suksa not'pingko*.  
 Page 410 1st col. l. 16 for *cover* read *covert*.  
 " " 2nd " l. 13, 14, 19 & 22 for *pháto* read *phásto*.  
 " " " l. 24 for *Jekhom ponchedum* read *Jekhom ponche*, *Jekhom dum*.  
 " " " l. 31 add after *dúm*, (become).  
 " " " l. 45 add (*phokko*).  
 Page 411 " " l. 14 add. *Thá totnachhe*, D.  
 " 412 1st col. l. 10 for *been* read *him*.  
 " " 2nd " l. 19 for *Nek'pingto* read *Nek'pingko*.  
 " " " l. 26 add foot note to *Thukto*. † *Duk* makes *thuk* transitive by initial hardening, just as *dúm* = become makes *thúm* causal or transitive. Of *thukto* *thukpingko* is the normal causal; but the latter is one of the numerous class of double causals, *thukto* being itself a causal. These double causals regularly formed, constitute one of the many correspondencies with the cultivated Dravidian tongues.  
 " " 1st col. l. 8 from bottom add (*phasto*).  
 " 413 2nd " l. 4 add Literally stay, verbally, by word.  
 " " " l. 14 add to *Lu'ko* (*lukko*).  
 " " " l. 21 for *Teshto* read *Testo* and add *Tessung*. *Tesche*.  
 " " " l. 22 add Literally, in thee wealth be or become.  
 " " " l. 33 add *Mum pingko*.  
 " 416 " " l. 2 add (*phasto*).  
 " " " l. 8 for *Lumthe* read *Lumche*.  
 " " " l. 29 add foot note. † See note at p. 408. *Dóng* = arrive here. *Dong lá* arrive there. *Só-yú* = come down and *Yúlá* = go down.

- Page 417 2nd col. l. 17 from bottom add foot note.† In composition lá only is used, as Beklá, Loklá, Yulá, &c.
- „ 418 1st col. l. 7 dele, tr.
- „ „ „ „ l. 9 for Increase in length, n. read Increase thyself in length or be lengthened.
- „ „ „ „ l. 19 add tr.
- „ „ 2nd „ l. 17 for vik ye ko read vik yekko, and add foot note. § Yekko, rukko, chokko, &c. are the true forms as proved by the reflex, causal &c. of each, and it is important to give them correctly in the imperative because the conjugation depends thereon, though in speech these imperatives avoid the cacophonous iteration of consonants (yek-ko, ruk-ko) by merging the first or radical one in an abrupt accent ye' ko, ru' ko.
- „ „ „ „ l. 31 & 38 same note.
- „ 419 „ „ l. 2 & 10 for Peshto read Pesto.
- „ „ „ „ l. 6 add Tú pingko.
- „ „ „ „ l. 8 add Sé pingko.
- „ „ „ „ l. 19 add Takko.
- „ „ „ „ l. 21 for kóssung read kósung.
- „ „ „ „ l. 22 for Yo'ho read yekko.
- „ 420 1st col. l. 7 for weight read weigh.
- „ „ „ „ l. 3 for Thengko read Phengko.
- „ „ „ „ l. 7 for Pu'ko, puksang, read Po'ko pukko, puksang.
- „ „ „ „ l. 10 add or Tha puk'.
- „ „ „ „ l. 21 after Piko add Pisung, Pi'cho, Pito.
- „ „ „ „ l. 25 (beat) for topsung read (beat) toppo topsung.
- „ „ „ „ l. 27 after chu'ko add chukko.
- „ „ „ „ l. 29 for chyássung read chyásung.
- „ „ „ „ l. 44 add Sásche, Sásung.
- „ „ „ „ l. 48 for chutó read chuto, chisung, chiche.
- „ „ „ „ l. 55 add to chu'po chippo.
- „ „ „ „ l. 2 from bottom for phato read phasto and to chho'po add choppo.
- „ 421 1st col. l. 37 & 38 add See p. 424.
- „ „ 2nd „ l. 9 for vekpháto read vekphásto.
- „ „ „ „ l. 16 add Rúpingko.
- „ „ „ „ l. 35 add Ji.
- „ „ „ „ l. 36 add Jito. Jísung. Jincho.
- „ „ „ „ l. 38 for hhálang-nó-dúm, read chhálang-nó-dum.\*
- „ 422 „ „ l. 8 add yekko.
- „ „ „ „ l. 10 for Nengle read Nengla.
- „ „ „ „ l. 12 add Ningche.
- „ „ „ „ l. 13 add Ningsung.
- „ „ „ „ l. 14 add Nengpingko.
- „ „ „ „ l. 12 from bottom add to Blento foot note †l is a constant ad libitum in fix after initial b.
- Page 423 „ „ l. 23 add foot note† Wash body = bathe is rip'che.
- „ „ „ „ l. 27 add (phasto).
- Page 424 2nd col. l. 4 after Tophto add Tosto.
- „ „ „ „ l. 12 for Dáwáng Bocho, posung or posung read Dáwáng or Bocho, posung or pasung.
- „ „ „ „ l. 13 for Dáwáng, Bocho, páanche read Dáwáng or Bocho páanche.
- „ „ „ „ l. 19 for Ná'to, nassung, nasche read Nasto, nassung nasche.
- „ „ „ „ l. 35 after Hon. (khon) add Hontadúm.
- „ „ „ „ l. 38 for phato read phasto.
- „ „ „ „ l. 2 from bottom add Khokta thumto.
- Page 425 2nd col. l. 3 add to Lok, foot note.\* Bek and Lok alone express the meanings, and the lack of empty words in this tongue causes it as often as pos-

- sible to dispense with adverbial forms of speech thus, for come in it uses enter (bek) and for come out issue (lok) or appear.
- Page 426 1st col. l. 38 for Behind the house read Behind, in back of the house.
- „ „ 2nd col. l. 20 for Hálá pánachhe pochhe, Duals read Haha pánachhe vel pochhe, Duals.
- „ „ „ l. 27 for (no Dat. or acc. sign.) read Kem (no Dat or acc. sign).
- Page 429 for Comparative Vocabulary of the Languages of the broken Tribes of Nepal read Grammar of the Váyu Language.
- „ „ l. 17 for nárgung read návung.
- „ 430 l. 5 for Gonargung read Gónayung.
- „ 435 l. 8 for grammar read declension.
- „ 441 dele note.
- „ 442 l. 3 from bottom for in comparison read which in composition only, is.
- „ „ add note to Pl. Im. Mood. The singular, dual and plural here refer as usual, to the agents. Those which follow refer to the objects the combination of which with the agents in the conjugation of verbs (transitive) constitutes the peculiarity of this language, as of the following wherein it is more fully carried out.
- Now turn to the passive voice and you will see the positions of these personal endings reversed, the starting point being the citation of the objects or patients whence the verb becomes passive, so far as that voice can be said to exist. The inversion, however, though usual is not quite indispensable. See remarks in sequel. Passivity is denoted by the object: but so also is transitiveness; and hence the many forms common to both voices. They are denoted by a cross † prefixed.
- Page 445 after line 22 add of the object\* and foot note. See note at page 442.
- Page 449 after negative mood add of indicative singular.
- Page 450 after lines 25 and 34 add of the object\* and foot note. “See remark at p. 126.
- Page 451 l. 2 from bottom for Sista nó-dum read Sista { no.  
dum.
- „ 452 l. 3 for dam read dum.
- „ „ l. 18 dele kha.
- Special forms at pp. 452 and 457 to be inserted at the end of the ordinary conjugation, or after “Causals” of sequel.
- Page 453 last line add top-po.
- „ 455 after line 29 add of the object.
- „ 457 at top add Indicative present.
- „ „ l. 2 for sheer neuters (see plu) read pages 451, 452.
- „ „ l. 3 from bottom for prior note at Sishito read prior verb, pp. 451, 452. and add after Váyu active and passive.
- Page 464 l. 3 add foot note. \*Observe that these are singular, dual and plural of the object, as noted elsewhere.
- „ 465 Special forms to be inserted after continuative Mood in p. 465.
- „ 467 add to line 4 from the bottom (potius Phok).
- „ 468 l. 5 add (phokko).
- „ 481 l. 11 for Equal fusion in both cases read equal degree of fusion in regard to both noun and verb.
- „ „ l. 27 for 3rd read 3.
- „ „ l. 30—36 for compare &c. &c. down to strike read
- |            |           |                |           |
|------------|-----------|----------------|-----------|
| † á-pá, my | } father. | { teub-ú, I    | } strike. |
| í-po, thy  |           | { teub-í, thou |           |
| á-po, his  |           | { teub á, he   |           |
- Wherewith compare
- |         |                |                           |
|---------|----------------|---------------------------|
| Sontal  |                | and Kuswar.               |
| apu-ing | dal-eng, aing. | Baba-im. Thatha-un-ik an. |
| apa-m   | dal-me, am.    | Baba-ir. Thatha-ir-ik-an. |
| apu-t   | dal e, ai.     | Baba-ik. Thatha ik-an.    |

Page 484 l. 23 add foot note. † Take notice that this sample of the language is also meant to exhibit the status and condition of the people as viewed by themselves.

" " l. 24 *for* Páte *read* Pachya.

Page 486 *for* BAHING VOCABULARY *read* GRAMMATICAL ANALYSIS OF THE BAHING DIALECT OF THE KIRANTI LANGUAGE.

" " 2nd col. l. 16 add foot note. † So from Kōja = belly is formed kojacha = glutton; and from Khojim = house, Khojimeha = householder.

Page 488 1st col. l. 7 and 35 add foot note. Formed respectively from kholi = leg and gú = arm. The suffix blem is a segregative indicative of the class of flat things.

" " 2nd col. l. 29 *for* Rúpachó *read* Rúpacho grokso.

" " " " l. 30 *for* Grokso *read* Rúpachóme.

" " last line *read* ú the first person = wa of the noun.

" 489 1st col. l. 11 add Lowland = Dhípté.

" " 2nd col. l. 23 add apobing.

" " " " l. 24 dele Gia.

" " " " l. 25 dele Gai atámi.

" " " " l. 29 add note † See note at urine.

" 490 last line add literally, cane its juice.

" 491 1st col. l. 5 *for* Muryuácharniku *read* Muryeuácharniku.

" " l. 6 add note § Múryeu á charnika, mankind, its urine. Songara á charnika, goat kind, its urine, the common form of the genitive. See "ordure."

Page 492 1st col. l. 17 *for* bokab *read* bokba.

" " " " l. 2 from bottom *for* both are senses *read* both senses.

" 495 " " l. 3 from bottom add after wala, of Urdu.

" " " " l. 2 from bottom *for* Gigimmo *read* Gigimmé.

Page 497 2nd col. l. 24 *for* Kwong ásim one score = Kwong and one *read* Kwong ásim Kwong = one score and one.

Page 500 2nd col. l. 4 add excl.

" " " " l. 5 add incl.

" " 1st col. l. 27 add foot note. † Observe the gí, to be born, becomes by hardening kí, to beget. But kí also means, cause to be born and so far is a causal though the ordinary causal is formed by páto. Hence if we add páto to the transitive kí we have a double causal. This is common to all the verbs of the sort and is a Dravidian trait.

" " l. 5 from the bottom *for* woncho *read* wonche.

" 501 1st col. l. 3 *for* Thiyato *read* Thipato.

" 512 1st col. l. 2, 3 and 4 *for* Thyangso *read* &c. &c. Phyangso.

" 515 1st col. l. 42 add foot note after Khyimá gwáre. Khyim á-gwáre, literally, house, its interior in. This use of the conjunct pronominal sign in lieu of a genitive (house its inside) and of a noun in the locative case, in lieu of an adverb or preposition, are both normal and common to this and the foregoing language.

Page 518 2nd col. l. 37 *for* riskso *read* Namrikcho.

" 519 2nd col. l. 20 *for* Newar dau khwag no, *read* Newar dau khwog no.







Bound by

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13, Patwarbagan Lane,

Date ~~12~~ MAY 1959



